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ASIATIC SOCIETY OF BENGAL,

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“It will flourish, if naturalists, chemists, antiquaries, philologists, and men of science in different parts of *Asia*, will commit their observations to writing, and send them to the Asiatic Society at Calcutta. It will languish if such communications shall be long intermitted; and it will die away, if they shall entirely cease.”—

SIR WM. JONES.

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1859.





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# JOURNAL

OF THE

## ASIATIC SOCIETY.

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No. II. 1859.  
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*Notes on the Flora of Lucknow with Catalogues of the cultivated and indigenous Plants.*—By THOS. ANDERSON, M. D., F. L. S., Garrison Asst. Surgeon, Fort William.

As a large part of Northern India, including the Punjaub, is under cultivation at all seasons of the year, its Flora may justly be styled Agrarian; only on unreclaimed land, does a spontaneous, shrubby (rarely arborescent) vegetation occur, and this composed of a limited number of well known species. From the existence of greater humidity, along the base of the Hills, a luxurious forest exists there, which seems to be merely an extension of the arboreous vegetation of the outer Himalayas. The plants, in the neighbourhood of all the stations in the Upper Provinces, are, with a few exceptions, of this Agrarian type, but mingled with an introduced Flora of considerable amount and with an extensive number of truly cultivated species.

In native gardens, many species, indigenous in Southern India, the Himalayas, and countries beyond the Indus, are cultivated, which, from boundaries being broken down, and the gardens abandoned, spring up spontaneously in waste places. To these are to be added a small, but widely spread, number of plants introduced by the various conquerors of the country, such as *Argemone Mexicana*, *Anona squamosa* and *reticulata*, *Parkinsonia aculeata*, etc. These various elements of the Flora of Northern India increase the manifold difficulties of all young Indian botanists in whose collections these cultivated plants are always to be found. That I may attempt

to supply a want, I myself have much felt, and at the same time avoid conveying a wrong impression of the extent of the Flora of Lucknow, I shall exclude from the catalogue all cultivated and introduced plants, and shall detail them at length in the following notes on the peculiarities of its climate and cultivation. Lucknow is situated in Lat.  $27^{\circ}$  E. Long.  $81^{\circ}$  on the right and south bank of the Goomtee, a considerable stream which rises in the marshy country about Khyraghur, near the base of the Nipal Himalaya. The valley of the Goomtee varies at Lucknow from one to four or five miles in breadth, and for the most part consists of a richly cultivated alluvial soil, interspersed with patches of sand, which are often blown into hillocks by the prevailing winds. The valley is bounded on both sides by banks of kunkur (nodules of limestone) rising about forty or fifty feet above the level of the river, which in some parts of its course, runs at their base. These banks are intersected by ravines of considerable extent running at right angles to the course of the river; they serve during the rains to drain the adjacent country. The sandy patches extend across Oude to the banks of the Ganges at Cawnpore, and are there connected with the sandy valley of that river.

The climate of Lucknow presents, with well marked features, the three seasons of Northern India, namely the cold season, from the middle of October to the end of March, the hot dry season, from the beginning of April to the middle or end of June, and the rainy season, extending over the months of July, August and September, passing into the cold weather during the first fortnight of October. The distinctive features of these seasons at Lucknow are, in the cold weather, considerable dryness, greatly diminished power of the sun's rays, though favoured by a cloudless sky, great nocturnal radiation, and consequently an extended daily thermometric range. My records of meteorological observations were destroyed during the mutinies of 1857, so that I am unable to give a thermometric table, but the minimum temperature recorded during 1856 was  $37^{\circ}$  Fahr. In the hot weather, the existence of steady hot westerly winds, excessive dryness, returning power of the sun's rays, and decrease of thermometric range give an almost African character to the climate. On the accession of the rains, the climate is



completely altered, the atmosphere becomes saturated with moisture and the fall of rain is considerable, the heat is much diminished, nocturnal radiation almost ceases while the sky is clouded, and the daily range of the thermometer reaches its minimum. As the season advances, the climatic conditions of the cold weather return, and by the 10th or 15th of October, that season has again commenced.

The climate of Lucknow more resembles that of the Punjab and Scinde than might be expected in so Eastern a district, for Rohilkund, several hundred miles to the west, has moister and more equable seasons. That such is the case at Lucknow is exemplified by the existence there of several species peculiar to the arid regions of India, and the Arabian deserts, and which, except at Cawnpore, do not occur east of the dry countries bounded by the Jumna. Dr. Thomson has thoroughly explored the neighbourhood of Moradabad in the west of Rohilkund, the district, immediately east of the Ganges, or west of Oude, and has not met with them there, nor did I observe them in the eastern districts of that province either at Shajehanpore or Bareilly. Among these dry country plants, are *Capparis aphylla* forming extensive jungles in the hottest parts of the Punjab, and found sparingly at Lucknow. *Corchorus depressus*, Linn. a native of the Arabian deserts, occurring in the Punjab, near Agra, and also at Lucknow. *Alhagi Maurorum*, the camel thorn of the desert, a peculiarly dry country plant common in the Punjab, which I found at Lucknow and traced along the sandy patches to Cawnpore where it was observed many years ago by General Hardwicke. *Berthelotia lanceolata* found formerly by Genl. Hardwicke at Cawnpore, and not known elsewhere east of the Jumna except at Lucknow.

Most of these plants are also found in the Deccan, where the climate is similar to that of the dry parts of the Punjab, and the North Western Provinces.

This peculiar Flora does not extend much beyond Lucknow in any direction, except towards Cawnpore. At Nawabgunge, eighteen miles to the east of Lucknow, it ceases, on the north it extends twenty or thirty miles, and on the west, only six or seven. This prolongation of the dry climate and desert Flora of India into the richly cultivated and well-watered province of Oude is interesting

and at the same time difficult to account for. The want of meteorological observations precludes the possibility of any reason being assigned, and causes us for the present to remain contented with the fact. Dr. Thomson suggests as a possible explanation, a depression in the chain of the Himalaya, north of Lucknow, which would cause a diminished rainfall and consequently a drier climate. Our knowledge of the topography of Nipal is, however, so limited that this suggestion cannot be tested by a reference to maps or altitudes.

In all parts of India, but especially in the North Western Provinces, there is, as I have already said, a large and diversified non-indigenous Flora. To a young botanist, these plants are most perplexing and it is not for several years that he is able to distinguish the truly wild species of his district from those that have been introduced. In no book has this character of the Flora of Northern India, received sufficient prominence; even Dr. Royle, in his *Illustrations of Indian Botany*, only refers to it incidentally. The descriptive works on botany that exist only serve to increase his confusion, as many of the species are included in these works from the fact of their being natives of the Himalayan or South Indian forests. It seems therefore desirable to accompany the catalogue of the indigenous species by some notice of the cultivated and introduced plants, and in so doing, I shall distinguish as much as possible between those species which are cultivated on a large scale, as field crops, and these found only in gardens, or orchards.

In all climates, plants cultivated for the use of man have an important influence on the physical aspect of the country. In temperate regions, where cereal grains and other annual species form the crops, there is wanting that luxuriance and diversity of form which are given to the tropical landscape by a cultivation composed of the economic palms, plantains, perennial Euphorbiaceæ, and tall annual grasses and leguminosæ. Northern India, with its widely different seasons, yielding at different periods of the year the products of the temperate, as well as of the torrid zone, presents, in a considerable degree, the physical appearance of both.

The cultivation of Upper India may be divided into three periods corresponding to the seasons of the year.

First—the season of wheat and vetch cultivation, extending over

the cold season, the harvest occurring in the end of March and first week of April. Second—the season of cucurbitaceous cultivation, lasting from the harvest of the first season to the beginning of the rains. Third—the season of tropical grains and leguminosæ, commencing with, and lasting through the rainy season.

I.—*The season of Wheat and Vetch cultivation.*

In the beginning of October, when the rains have subsided, the ground is rapidly prepared for the reception of the cold season crops, by its surface being several times turned over, by means of the rude native plough; the seed is sown in shallow furrows, and the ground smoothed by a log of wood being dragged over it by a pair of bullocks, the driver standing on the log, to steady its progress and increase its weight. From the dryness of the climate after October, irrigation forms an important part of the agriculture of the cold weather, and the fields are flooded with water several times during this period. The water is obtained either from wells, or natural ponds of water.

In the valley of the Goomtee, the water is near the surface, and is easily raised by an earthen vessel, attached by a short rope to the end of a pole so fastened to an upright post, as to admit of the end to which the vessel is secured, being lowered into the well, while the other extremity, which is loaded with a stone or mass of clay, lessens the force required to raise the bucket when filled with water. The principle is that of a lever, the resistance to be overcome, being the bucket full of water, the fulcrum, the points of attachment of the pole to the upright post, and the power, the loaded extremity, to which a man also adds his weight. Two men are required, one, to raise and lower the bucket, and another, to empty the water into the trough, from which the field is watered. On the land above the valley of the river, the wells require to be sunk below the kunker beds. There the water is obtained by means of bullocks raising a large leathern bucket or basket, attached to a strong rope of untanned hide passed over a large wheel, fixed over the well. The bullocks to lessen their labour work on a greatly inclined plane the length of the rope. The wells are often eighty feet deep, and contain cold, good water. I have never observed the Persian wells in Oude, though they occur at Cawnpore, and commonly, north-west of Meerut and Delhie.

From the tanks or ponds, the fields are irrigated by the water being raised to the necessary height, by rude locks which are alternately filled, and emptied, by means of closely worked wicker baskets, with ropes attached, held at arm's length, between two men. From the highest lock, the water ramifies in water-courses all over the fields. The species of plants cultivated are numerous, and consist almost entirely of those of temperate regions and which probably have been established in Northern India for many ages. The following list, though professedly including only the plants found near Lucknow, from the extensive distribution of the wheat and vetch cultivation over Northern India, comprises in reality nearly all the species, cultivated in the cold season, in the countries north-west of the Soane to the Indus.

*Cultivated plants of the cold season.*

*Papaver somniferum*, Linn.

*Lepidium sativum*, Linn. Cultivated in gardens and near wells in fields.

*Eruca sativa*, Lam. } Largely cultivated for their oil yielding seeds.  
*Sinapis juncea*, Linn. }

*Brassica Napus*, Linn.

———— *oleracea* var. *B. vulgaris*, D C.

————— var. *F. Botrytis a cauliflora*, D C.

*Raphanus sativus*, Linn.

*Linum usitatissimum*, Linn. Cultivated only for the oil yielded by its seeds.

*Trigonella fœnugræcum*, Linn. Seeds used as a condiment in curry.

*Cicer arietinum*, Linn. Gram, of Europeans; a white flowered and large-white seeded variety is cultivated at Lucknow under the name of Kaboollee chunna.

*Medicago sativa*, D C. Cultivated very sparingly by the natives, as fodder for horses.

*Vicia Faba*, Linn.

„ *Lens*.

„ *sativa*, Linn.

*Lathyrus sativus*, Linn.

*Pisum sativum*, Linn.

*Ligustium ajowain*, Roxb.

*Fœniculum vulgare*, Gartn.

*Daucus carota*, Linn.

*Coriandrum sativum*, Linn.

*Anethum sowa*, Roxb.

*Pimpinella involuerata*, W A.

*Carthamus tinctorius*, Linn.

*Solanum tuberosum*, Linn.

*Nicotiana Tabacum*, Linn.

*Capsicum annuum*, Linn.

*Plantago Isphagula*, Roxb. Cultivated for its demulcent seeds.

——— Major. Cultivated at Lucknow for its seeds, which are used as food for birds.

*Beta Bengalensis*, Roxb.

*Ricinus communis*, Linn.

*Cannabis sativa*, Linn.

*Allium sativum*, Linn.

——— *Porrum*, L.

——— *Ascalonum*, L.

——— *Cepa*, L.

*Hordeum hexastichon*, L.

*Triticum vulgare*, Willd.

——— var. *aestivum*. An awned and an awnless variety, are cultivated.

*Panicum miliaceum*, Willd.

From the custom of sowing several species together, or in alternate furrows, the fields present brighter, and more diversified hues, than they do in countries where agriculture has made greater advances. Within the limit of a few acres are often to be found, *Sinapis juncea*, *Eruca sativa*, *Brassica napus*, and *Linum usitatissimum*; with *Carthamus tinctorius* in one of the corners, or occupying one of the furrows, and near the well and shaded by a fig, moringa or neem tree, *Lepidium sativum*, *Fœniculum vulgare*, *Coriandrum sativum*, *Trigonella fœnu-græcum* and one or two of the species of *Allium*. The leguminosæ of the cold season are also generally grown together; near Lucknow, I have noticed in one field *Pisum sativum*, *Ervum lens*, *Vicia sativa*, *Lathyrus sativus* and



*Cicer arietinum*. The borders of the field, where they are contiguous to a footpath or road, are often lined by plants of castor-oil or *Sesbania Ægyptica*, in a single row, with *Lablab vulgare* and *cultratum* twining round their stems. As the natives seldom clean the seeds before sowing them, weeds spring up abundantly with all the crops, and are left almost unmolested. The commonest of these are *Argemone mexicana*, *Fumaria officinalis*, var. *Vaillantii*, the species of *Sinapis* cultivated for economic purposes, *Saponaria vaccaria*, *Medicago denticulata* and *lupulina*, *Melilotus parviflora*, *Phalaris canariensis*, *Cichorium Endivia*, *Convolvulus arvensis*, *Anagallis arvensis*,  $\beta$ , *cærulea*, *Chenopodium album* and *hybridum*, *Asphodelus clavatus*, and in wheat and barley fields, *Avena fatua* and *Lolium temulentum*.

## II.—The season of Cucurbitaceous cultivation.

This season commences at the return of the hot weather in the beginning of April, contemporaneously with the harvest of the cold season crops. The most characteristic plants are *Cucurbita citrullus*, *Cucumis melo*, *momordica*, and *utilissimus*, which are extensively cultivated until the rains. During this season, the mangoe ripens its fruit, also *Grewia Asiatica*, *Mimusops Kanki*, and *Artocarpus integrifolius*. These Cucurbitaceæ are most successfully cultivated on the sandy beds of rivers, and on low lying ground, which from being under water during the rains, is not available for the crops of that period.

The following species I observed, commonly cultivated in Oude, in April, May and June.

### *Cucurbitaceæ.*

- Cucurbita Citrullus, Linn.
- maxima, Duch.
- Pepo, Linn.
- Lagenaria vulgaris, Ser.
- Cucumis melo, Linn.
- momordica, Roxb.
- sativus, Linn.
- utilissimus, Roxb.
- Luffa pentandra, Roxb.
- acutangula, Roxb.

Momordica Charantia, L.

Trichosanthes anguina, L.

In the fields and waste places, several of the weeds found among the crops of the cold weather, still exist, with the addition of several species almost peculiar to this season ; such as, *Sida retusa*, *Sida humilis*, *Corchorus trilocularis*, *Tribulus terrestris*, *Crotalaria neglecta*, *Cyanopsis psoraloides*, *Spermacoce hispida*, *Vernonia cinerea*, several species of *Blumea*, *Vicoa Indica*, *Francoccuria crispa*, *Echinops echinatus*, *Cirsium Wallichii*, *Microlonchus divaricatus*, *Campanula canescens*, *Trichodesma Indicum*, *Celsia Coromandeliana*, one or two species of *Leucas*, *Physalis flexuosa*, and several grasses, of which *Imperata arundinacea* and *Cenchrus echinatus* are the commonest.

III.—In the end of June, the occurrence of moist easterly winds occasional thunderstorms with slight showers are the first signs of the approach of the rainy season.

These first falls of rain are anxiously looked for, by the agriculturist, as they serve to soften the ground, scorched by the burning sun, and drought of the previous four months, and when they occur, he loses no time in preparing the soil, for the reception of the “kurreef” or rain crop. In the beginning of July, the rains have become quite established, and their vivifying influence is at once visible ; the face of nature becomes completely altered, and everywhere, the earth is covered with a carpet of the richest green, composed of the strictly tropical cultivation of the season, and of tropical weeds, and tall grasses. The perennial plants, stunted by aridity and excessive heat, become so affected by the prevailing moisture, as to be difficult of recognition, and have thus given rise to many of the doubtful species of systematic works. These forms are most common among Leguminosæ, Compositæ, Labiatae and Acanthaceæ. Tropical grains and Leguminosæ form the majority of the cultivated species. The most conspicuous plants among them are *Hibiscus cannabinus*, with its purple-centred, yellow flowers. *Crotalaria juncea*, which in September, produces long terminal spikes of sweet smelling bright yellow flowers, so numerous, that the green of the leaves is obscured by the mass of blossom. Both these species yield a strong fibre, used in the manufacture of coarse paper, canvass, and cordage. Among the economic grasses, *Zea*

*mais*, the tall *Penicillaria spicata* and *Sorgum vulgare* are the most striking, so tall and so thickly planted are they that even on horse-back the view is obscured by them. Several species such as, *Paspalum frumentaceum*, *Eleusine coracana*, yield grains little known to Europeans. They are used by the poorer natives, but so inferior is the nourishment they afford, that sloughing of the cornea, and other diseases of debilitated constitutions are ascribed to their use.

Tropical weeds, of the orders Lythraceæ, Leguminosæ, Convolvulaceæ, Scrophulariaceæ, Acanthaceæ, Amaranthaceæ, Commelynaceæ, are abundant. Among them are the various species of *Ameletia*, and *Ammannia*, *Crotalaria sericea* and *mysorensis*, *Cassia pumila*, *Mucuna prurita*, *Rhynchosia* and *Desmodium*, *Ipomoea pestigridis sessiliflora* and *pilosa*, *Bonnaya serrata* and *veronicæfolia*, *Herpestes monniera*, *Striga densiflora*, *Digera arvensis*, *Amaranthus spinosus*, *Achyranthes lappacea*, *Commelyna communis* and *Benghalensis*. *Anileima nudiflorum*, several cyperaceæ and gramineæ, principally of the genera *Panicum*, *Eleusna*, and *Andropogon*. The rains cultivation of India being widely diffused, the following list of Lucknow plants consists of species found nearly all over India.

#### *Cultivated Rains Plants.*

*Hibiscus cannabinus*, L.

———— *sabdariffa*, L. In gardens only, introduced from the W. Indies.

*Abelmoschus esculentus*, W. and A.

*Gossypium herbaceum*, L. Produces two crops in the year, one at the end of the rains, another in April.

*Crotalaria juncea*, L. Largely cultivated for its fibre.

*Indigofera tinctoria*, L.

*Phaseolus lunatus*, L. In gardens only.

———— *Mungo*, L.

———— *radiatus*, Roxb.

———— *aconitifolius*, Jacq.

*Dolichos sinensis*, L. Three varieties with white, brown, and black seeds respectively.

*Lablab vulgare*, Savi. Several unimportant varieties.

———— *cultratum*, D C. This species with *L. vulgare*, though rains plants, are to be found in fruit all through the cold season, though otherwise then nearly dormant.



*Canavalia gladiata*, D C. Common in gardens and near native houses.

*Mucuna capitata*, W. and A. In gardens only.

*Batatas edulis*, Choisy.

*Solanum Melongena*, L.

*Lycopersicum esculentum*, Mill.

*Piper Betle*, L. It is extensively cultivated at some villages near Bunnee, eighteen or twenty miles from Lucknow.

*Amaranthus polygamus*, L.

———— *oleraceus*, L.

———— *gangeticus*, L.

*Basella alba*, L.

*Zingiber officinale*, Roscœ.

*Curcuma longa*, Roxb.

*Dioscorea alata*, L.

*Colocasia antiquorum*, Schott.

*Zea mays*, L.

*Oryza sativa*, L.

*Paspalum scrobiculatum*, L.

*Oplismenus frumentaceus*, Roxb.

*Pennisetum italicum*, R. Br. *Setaria*, Beauv.

*Panicum miliaceum*, Willd.

*Penicillaria spicata*, Willd.

*Sorghum vulgare*, Pers.

*Saccharum officinarum*, L. Flowers in the rainy season, but the crop is not cut until the end of the cold weather.

*Eleusine coracana*, Gærtn.

———— *stricta*, Roxb.

IV. The long established plants of the native gardens, the fruit and common ornamental trees of Northern India form the last portion of the vegetation of Lucknow, to which I shall advert, before detailing the indigenous Flora.

In European gardens, are to be found in the cold season, most of the annuals, common in gardens in England, and several of them have become favorites with the natives, but I shall pass them over as they are here without interest to the botanical student. These plants of native gardens have probably been cultivated for many gener-

ations, the origin of several is doubtful, many of them are indigenous in some part of India, either north or south, some have been introduced from Persia and the oriental region, and a few cosmopolitan species seem to have been imported by the different conquerors of the country. They spring up often on rubbish heaps, or by the wayside and near villages and towns, and are thus apt to be gathered and included in the Flora of the district. Out of the list appended, those most worthy of notice are. *Cheiranthus cheiri*, *Hibiscus mutabilis*, *Guateria longifolia*, which probably here reaches its northern limit as it seldom or never flowers, and is nearly deciduous; *Cookia punctata*, *Eriobota Japonica*, *Pyrus sinensis*, are common in the gardens of the Nawabs. *Ananus sativus* succeeds well, though not extensively cultivated. A few trees of *Cocos nucifera* exist at Lucknow, though the climate is utterly unsuited for them. Lofty trees of *Ailanthus excelsa*, a tree rare north of the Jumna, occur very commonly at Lucknow.

*List of cultivated plants and trees of the native gardens and orchards or "bags."*

*Ranunculaceæ.*

*Delphinium ajacis*, L.

*Magnoliaceæ.*

*Michelia champaca*, L.

*Anonaceæ.*

*Gnatteria longifolia*, Wall.

*Anona squamosa*, L.

—— *reticulata*, L.

*Papaveraceæ.*

*Papaver somniferum*, L. Several garden varieties.

—— *dubium*, L.

—— *Rhœas*, L.

*Crucifereæ.*

*Cheiranthus Cheiri*, L.

*Caryophyllaceæ.*

*Dianthus chinensis*, L.

*Linaceæ.*

*Linum trigynum*, Roxb.

*Malvaceæ.**Malva sylvestris*, L.*Althaea rosea*, Cav.*Hibiscus Rosa sinensis*, L.——— *mutabilis*, L.*Bombaceæ.**Bombax malabaricum*, D C.*Byttneriaceæ.**Pentapetes phoenicea*, L.*Tiliaceæ.**Grewia asiatica*, L.*Aurantiaceæ.**Bergera Konigii*, L.*Citrus decumana*, L. The pumelo.——— *Aurantium*, L. The orange.——— *Bergamia*, Risso. The common acid lime.——— *Limetta*, Risso. The sweet lime.——— *medica*, L. Common citron.*Sapindaceæ.**Sapindus emarginatus*, Vahl. Cultivated near villages in Oude.*Nephelium Lichi*, W. and A. Cultivated in the gardens of Nawabs and at the old cantonment of Lucknow.*Meliaceæ.**Melia Azedarach*, L.——— *sempervirens*, Roxb. Is it merely a variety?*Azadirachta indica*, Ad. Juss.*Ampelideæ.**Vitis vinifera*, L.*Balsamineæ.**Impatiens Balsamina*, L.*Oxalidaceæ.**Averrhoa carambola*, L.*Rutaceæ.**Ruta angustifolia*, Pers.*Zanthoxylaceæ.**Ailanthus excelsa*, Roxb.

## CALYCIFLOREÆ.

*Rhamnaceæ.**Zizyphus jujuba*, Lam.———— *vulgaris*, Lam.*Terebinthaceæ.**Mangifera indica*, L.*Moringeæ.**Moringa pterygosperma*, Gärtn.*Leguminosæ.**Papilionaceæ.**Clitoria Ternatea*, L.*Sesbania aegyptica*, Pers.*Erythrina indica*, Lam.*Dalbergia Sisso*, Roxb.*Mimoseæ.**Mimosa pudica*, L.*Acacia serissa*, Buch.*Guilandina Bonduc*, Ait. hort. Kew.*Poinciana pulcherrima*, L.*Parkinsonia aculeata*, L.*Tamarindus indica*, L.*Cassia Fistula*, L.———— *suffruticosa*, Kön.———— *auriculata*, L.———— *occidentalis*, L.*Bauhinia variegata*, L.var *purpurea*.— *caudida*.*Bauhiuia purpurea*, L.*Bauhinia pariflora*, Vahl.*Rosaceæ.**Amygdalus Persica*, L.———— var *nectarina*.———— *cordifolia*, Roxb. The flat China peach.*Prunus triflora*, Roxb.*Rosa indica*, L.

*Rosa centifolia*, L. Cultivated for the manufacture of rose-water and ottar of roses.

*Eriobotrya Japonica*, Lindl. Sparingly cultivated at Lucknow.

*Pyrus sinensis*, Lindl. Common in the larger native gardens.

*Granataceæ.*

*Punica granatum*, Linn.

*Lythraceæ.*

*Lawsonia alba*, Lam.

*Lagerstroemia indica*, Linn.

*Myrtaceæ.*

*Psidium pyrifera*, Linn.

———— *pomifera*, Linn.

*Eugenia Jambos*, L.

———— *Jambolana*, Lam.

*Papayaceæ.*

*Carica Papaya*, L.

*Crassulaceæ.*

*Bryophyllum calycinum*, Salisb.

*Cactææ.*

*Opuntia Dillenii*, Hard.

*Rubiaceæ.*

*Nauclea cordifolia*, Roxb.

*Gardenia florida*, L.

*Morinda citrifolia*, L.

*Hamiltonia suaveolens*, Roxb.

*Ixora coccinea*, L.

*Compositææ.*

*Callistephus chinensis*, Nees.

*Helianthus annuus*, L.

———— *tuberosus*, L.

*Tagetes patula*, L.

———— *erecta*, L.

*Chrysanthemum indicum*, L.

———— *sinense*, Sabin.

*Artemisia indica*, Willd.

*Calendula officinalis*, L.

Amberboa indica, D C.

————— moschata, D C.

Centaurea Cyanus, L.

Cichorium Endivia, Willd. Cultivated in gardens, and springing up spontaneously with the cold weather crops.

#### COROLLIFLORE.

##### *Ebenaceæ.*

Diospyros tomentosa, Roxb.

##### *Sapotaceæ.*

Bassia latifolia, Roxb. At Lucknow and throughout Oude spirit is distilled from the flowers.

Minusops Kauki, L.

##### *Jasmineæ.*

Jasminum pubescens, Willd.

————— revolutum, Sims.

————— grandiflorum, L.

Nyctanthes arbor tristis, L.

##### *Apocynaceæ.*

Nerium odoratum, Lam.

Vinca rosea, L.

Tabernaemontana coronaria, R. Br.

Plumiera acuminata, Ait.

Allavoranda cathartica, L.

Carissa carandas, L.

Thevetia nereifolia, Juss.

##### *Bignoniaceæ.*

Millingtonia hortensis, L.

##### *Sesameæ.*

Martynia diandra, Glox.

##### *Convolvulaceæ.*

Argyreia speciosa, Swt.

Quamoclit phœniceum, Choisy.

————— vulgare, Choisy.

var album.

Pharbitis Nil, Choisy. Cultivated in gardens and also apparently wild near Lucknow.

————— cœrulescens, Choisy.

*Calonyction muricatum*, G. Don.

*Convolvulus purpureus*, L. Several inconstant varieties are described, named from the colour of the flowers.

*Cordiaceæ.*

*Cordia Myxa*, L. Commonly planted by road sides.

*Scrophulariaceæ.*

*Russelia juncea*, Zucc.

*Acanthaceæ.*

*Barleria Prionitis*, L. Wild, but also cultivated in gardens.

*Verbenaceæ.*

*Vitex Negundo*, L. Wild, but also cultivated on account of its sweet smelling flowers.

*Vitex incisa*, Lam. Cultivated at Lucknow.

*Gmelina asiatica*, L. Cultivated in an orchard at the village of Onnao near Lucknow.

*Labiataæ.*

*Ocimum sanctum*, L. Cultivated as a sacred plant by the Hindoos.

*Mentha viridis*, L.

*Solanaceæ.*

*Physalis peruviana*, Linn. Cultivated for the sake of its acid berries.

*Amarantaceæ.*

*Celosia cristata*, L.

*Gomphrena globosa*, L.

*Nyctagineæ.*

*Mirabilis jalapa*, L.

*Santalaceæ.*

*Santalum album*, L. Occurring frequently near Hindoo villages, but always planted.

*Euphorbiaceæ.*

*Emblica officinalis*, Gartn.

*Cicca disticha*, L.

*Jatropha curcas*, L.

*Euphorbia antiquorum*, L.

————— *Tiraculli*, L.

*Pedilanthus tithymaloides*, Poit.

} Planted near villages as hedge plants.

*Urticaceæ.*

*Morus lævigata*, Wall. Black mulberry.

—— *cashmeriana*, Royle. Long white fruited mulberry.

*Ficus Carica*, L.

—— *indica*, L. { Generally planted in North Western India,  
—— *religiosa*, L. { though both spring up spontaneously  
everywhere.

*Artocarpus integrifolius*, L.

*Amentaceæ.*

*Salix babylonica*, L.

*Conifereæ.*

*Thuja orientalis*, L.

*Cupressus sempervirens*, L.

## ENDOGENÆ.

*Marantaceæ.*

*Canna indica*, L.

*Iridaceæ.*

*Iris chinensis*, Curt. Probably introduced from China, common in native gardens.

*Amaryllideæ.*

*Crinum asiaticum*, L.

—— *latifolium*, Roxb.

*Pancratium Zeylanicum*, L.

*Agave Cuntala*, Roxb. (a vivipara, Royle).

*Bromeliaceæ.*

*Ananas sativa*, L.

*Liliaceæ.*

*Hemerocallis fulva*, Linn.

*Polianthes tuberosa*, Linn.

*Palmeceæ.*

*Caryota urens*, L. Two trees, thirty feet in height, have been for many years in the "Char Bagh" garden.

*Borassus flabelliformis*, L. Commonly planted near Lucknow for the sake of its sap, and for the leaves from which larger fans are made.



*Cocos nucifera*, L. The cocoa nut palm has been planted in several of the gardens in and near Lucknow. The trees are forty and fifty feet high, and though full grown, they never flower.

*Pandanæ.*

*Pandanus odoratissimus*, L. Extensively cultivated on account of its powerfully fragrant flowers.

*Gramineæ.*

*Bambusa* ——— ?

This extensive introduced Flora, large though it is, increases in importance when considered with reference to the comparatively small number of really indigenous species. The truly wild plants probably amount to five hundred or six hundred species, and are most well known and widely distributed in India. None of them are rare, except *Kobautia gracilis*, Royle, a new species of *Trifolium*, *Gmelina asiatica*, and *Crypsis phleoides*.

Unfortunately my list is not so complete as it might be, for, as my original collections were lost during the mutinies, it has been compiled from a set of duplicates I sent to Dr. Thomson, and from a small collection I made, while on service at Lucknow last year. The truly wild species drawn from these materials exceed four hundred, though many of the rarer plants, especially grasses, are wanting. *List of the indigenous plants of Lucknow.*

EXOGENÆ.

*Ranunculaceæ.*

*Ranunculus sceleratus*, L.

*Menispermaceæ.*

*Tinospora cordifolia*, Miers.

*Cocculus villosus*, D C.

*Cissampelos Pareira*, L.

*Nymphaceæ.*

*Nymphaea Lotus*, L.

————— *stellata*, Willd.

*Nelumbiaceæ.*

*Nelumbium speciosum*, Willd.

*Papaveraceæ.*

*Argemone Mexicana*, L.

*Fumariaceæ.*

*Fumaria parviflora*, Lam. Var *Vaillantii*.

*Cruciferæ.*

*Nasturtium palustre*, D C.

*Sisymbrium Irio*, L.

*Sinapis juncea*, L.

*Capparidaceæ.*

*Gynandropsis pentaphylla*, D C.

*Polanisia viscosa*, D C.

*Capparis horrida*, L.

——— *aphylla*, Roth.

*Flacourtiaceæ.*

*Flacourtia sapida*, Roxb.

*Violaceæ.*

*Ionidium suffruticosum*, Ging. Mss.

*Polygalaceæ.*

*Polygala arvensis*, Willd.

——— *Vahlana*, D C.

*Tamarascineæ.*

*Tamarix gallica*, L.

*Elatineæ.*

*Bergia ammannoides*, Roxb.

*Caryophyllaceæ.*

*Saponaria Vaccaria*, L.

*Silene conoidea*, L.

*Mollugo spergula*, L.

——— *pentaphylla*, L.

——— *nudicaulis*, Lam.

*Spergula pentandra*, L.

*Stellaria media*, Sm.

*Linaceæ.*

*Linum trigynum*, Roxb.

*Maloaceæ.*

*Malva rotundifolia*, L.

*Urena lobata*, L.

*Abelmoschus moschatus*, Moench.

*Abutilon indicum*, G. Don.

*Sida retusa*, L.

—— *acuta*, Burm.

—— *humilis*, Willd.

—— *cordifolia*, L.

—— *mysorensis*, Herb. Madr. in W. and A. Prod. Fl. ind.

*Byttneriaceae.*

*Melochia corchorifolia*, L.

*Waltheria indica*, L.

*Tiliaceae.*

*Corchorus depressus*, L.

———— *trilocularis*, L.

———— *olitorius*, L.

———— *capsularis*, L.

———— *acutangulus*, Lam.

*Aurantiaceae.*

*Glycosmis pentaphylla*, D C.

*Feronia elephantum*, Corr.

*Ægle marmelos*, Corr.

*Sapindaceae.*

*Sapindus emarginatus*, Vahl.

*Meliaceae.*

*Azadirachta indica*, Ad. de Juss.

*Oxalidaceae.*

*Oxalis corniculata*, L.

*Zygophyllaceae.*

*Tribulus terrestris*, L.

CALYCIFLORAE.

*Rhamnaceae.*

*Zizyphus Jujuba*, Lam.

*Zizyphus ænoplia*, Mill.

*Leguminosae.*

*Heylandia latebrosa*, D C.

*Crotalaria mysorensis*, Roth.

———— *junceae*, L.

———— *sericea*, Retz.

———— *neglecta*, W. and A.

- Crotolaria luxurians*, Benth.  
*Medicago lupulina*, L.  
 ——— *denticulata*, Willd.  
*Melilotus leucantha*, Koch.  
 ——— *parviflora*, Desf.  
*Trigonella* (an. n. sp.)  
*Cyamopsis psoraloides*, D C.  
*Psoralea corylifolia*, L.  
*Indigofera linifolia*, Retz.  
 ——— *enneaphylla*, L.  
 ——— *tinctoria*, L.  
 ——— *hirsuta*, L.  
*Glycine labialis*, L.  
*Tephrosia purpurea*, Pers.  
*Sesbania ægyptica*, Pers.  
 ——— *aculeata*, Pers.  
*Zornia angustifolia*, Sm.  
*Aeschynomene indica*, L.  
*Uraria picta*, Den.  
*Desmodium gangeticum*, D C.  
 ——— *triflorum*, D C.  
 ——— *latifolium*, D C.  
*Alhagi maurorum*, Lour.  
*Alysicarpus monilifer*, D C.  
 ——— *nummularifolius*, D C.  
 ——— *vaginalis*, D C.  
 ——— *bupleurifolius*, D C.  
*Vicia hirsuta*, Koch.  
*Abrus precatorius*, L.  
*Rhynchosia medicaginea*, D C.  
*Mucuna prurita*, Hook. Wild, as well as cultivated.  
*Butea frondosa*, Roxb.  
*Dalbergia Sissoo*. Wild in jungly places near Lucknow.  
*Mimosa rubicaulis*, Lam.  
*Desmanthus natans*, Willd.  
*Acacia Farnesiana*, Willd.  
 ——— *Arabica*, Willd.

Guilandina Bonduc, L.

Cassia Sophora, L.

——— pumila, L.

——— Tora, L.

Bauhinia variegata, L. Doubtfully wild near Lucknow.

*Rosaceae.*

Potentilla supina, L.

*Lythraceae.*

Ameletia indica, D C.

Ammannia octandra, L.

——— vesicatoria, Roxb.

——— multiflora, Roxb.

——— pentandra, Roxb.

——— rotundifolia, Buch. Ham.

*Onagrariae.*

Jussiaea repens, L.

Ludwigia parviflora, Roxb.

Trapa bispinosa, Roxb.

*Haloragae.*

Myriophyllum spicatum, L.

*Cucurbitaceae.*

Bryonia scabrella, L.

——— laciniosa, L.

Coccinia Indica, W. and A.

Momordica Charantia, L.

Trichosanthes cucumerina, L.

*Portulacaceae.*

Trianthema crystallina, Vahl.

——— obo cordata, Roxb.

——— pentandra, L.

Portulaca oleracea, L.

——— quadrifida, L.

*Paronychiaceae.*

Polycarpha corymbosa, Lam.

Hapalosia Laeflingiae, Wall.

*Ficoideae.*

*Glinus lotoides*, L.

*Cacteeae.*

*Cactus Indicus*, Roxb. Probably introduced into India from America.

*Saxifagaceae.*

*Vahlia viscosa*, Roxb.

*Umbelliferae.*

*Hydrocotyle asiatica*, L.

*Loranthaceae.*

*Loranthus longiflorus*, Desr.

*Rubiaceae.*

*Randia dumetorum*, Lam.

*Hedyotis Burmanniana*, Br.

*Bigelovia lasiocarpa*, W. and A.

*Spermacoce hispida*, L.

*Compositae.*

*Vernonia cinerea*, Less.

*Elephantopus scaber*, L.

*Sphaeranthus mollis*, Roxb.

*Grangea maderaspatana*, Poir.

*Berthelotia lanceolata*, D C.

*Blumea lacera*, D C.

—— *hieraciifolia*, D C.

—— *oxyodonta*, D C.

—— *aurita*, D C.

*Inula vestita*, Wall.

*Vicoa indica*, D C.

*Francoeuria crispa*, Cass.

*Caesulia axillaris*, Roxb.

*Eclipta prostrata*, L.

*Blainvillea latifolia*, D C.

*Xanthium sturmium*, L. I can find no distinctive characters between European and Indian specimens of this species, so marked or constant as to constitute *X. indicum* Roxb.

*Bidens decomposita*, Wall.

*Chrysanthellum Indicum*, D C.

*Glossogyne pinnatifida*, D C.

*Matricaria Chamomila*, L.

*Artemisia Indica*, Willd.

*Myriogyne minuta*, Less.

*Machlis hemisphærica*, D C.

*Filago prostrata*, D C.

*Gnaphalium luteoalbum*, L.

———— *crispatum*, Delil.

———— *Indicum*, L.

*Emilia sonchifolia*, D C.

*Echinops echinatus*, Roxb.

*Microlonchus divaricatus*, D. C.

*Cirsium Wallichii*, D C.

*Microrynchus nudicaulis*, Less.

———— *asplenifolius*, D C.

*Sonchus oleraceus*, L.

*Campanulaceae.*

*Campanula canescens* Wall.

COROLLIFLORÆ.

*Lentibulariaceae.*

*Utricularia stellaris*, L.

*Primulaceae.*

*Anagallis arvensis*, L.

*Jasmineac.*

*Jasminum Sambac*, Ait.

*Apocynaceae.*

*Carissa edulis*, Vahl.

*Vinca pusilla*, Murr.

*Asclepiadaceae.*

*Calotropis gigantea*, R. Br.

———— *procera*, R. Br.

*Pergularia pallida*, W. and A.

*Gymnema sylvestre*, R. Br.

*Gentianaceae.*

*Erythraea Roxburghii*, Don.

*Slevogtia orientalis* Griseb.

*Limnanthemum cristatum*, Griseb.

*Hydrophyllaceae.*

*Hydrolea Zeylanica*, Vahl.

*Convolvulaceae.*

*Batatas pentaphylla*, Choisy.

*Pharbitis Nil* Choisy.

*Ipomœa reptans*, Poir.

——— *Pes tigridis*, L.

——— *pilosa*, Sw. h. sub. 2nd ed. p. 289.

——— *sessiliflora*, Roth.

——— *cymosa*, R. et Sch.

——— *sepiaria*, Koen.

*Convolvulus pluricaulis*, Choisy.

——— *arvensis*, L.

*Evolvulus alsinoides*, L.

*Cuscuta reflexa*, Roxb.

*Borragineae.*

*Cordia Rothii*, Roem. et Sch.

*Ehretia laevis*, Roxb.

——— *aspera*, Roxb.

*Heliotropium Europæum*, L.

——— *brevifolium*, Wall.

*Arnebia hispidissima*, D C.

*Cynoglossum fructatum*, Wall.

*Trichodesma indicum*, R. Br.

*Scrophulariaceae.*

*Verbascum Thapsus*, L.

*Celsia coromandeliana*, Vahl.

*Antirrhinum orontium*, B. indicum, Benth.

*Lindenbergia urticæfolia*, Lehm.

*Limnophila gratioloides*, R. Br.

*Herpestes Hamiltoniana*, Benth.

——— *monniera*, Humb. and Kunth.

*Dipatrium junceum*, Ham.

*Ilysanthes parviflora*, Benth.



- Bonnaya brachiata, Link.  
 ——— parviflora, Benth.  
 ——— verbenaefolia, Spreng.  
 ——— veronicaefolia, Spreng.  
 Mazus rugosus, Lur.  
 Veronica anagallis, L.  
 ——— agrestis, L.

*Orobanchaceae.*

- Phelipaea indica, G. Don.

*Acanthaceae.*

- Ruellia latebrosa, Roxb.  
 ——— ringens, Roxb.  
 Dipteracanthus dejectus, Nees ab Esen.  
 Barleria cristata, L.  
 ——— Prionitis, L.  
 Asteracantha longifolia, Nees ab Esen.  
 Rostellaria procumbens, Roxb.  
 Rostellaria ———.  
 Adhatoda Vatica, Nees ab Esen.  
 Rungia pectinata, Nees ab Esen.  
 ——— repens, Nees ab Esen.  
 Peristrophe bicalyculata, Roxb.  
 Andrographis paniculata, Nees ab Esen.

*Verbenaceae.*

- Verbena officinalis, L.  
 Lippia nodiflora, Rich.  
 Gmelina asiatica, L.  
 Vitex negundo, L.

*Labiatae.*

- Ocimum Basilicum, glabratum, Benth.  
 ——— inodorum, Koen.  
 Salvia plebeia, R. Br.  
 Nepeta ruderalis, Hamilt.  
 Anisomeles ovata, R. Br.  
 Leucas zeylanica, R. Br.  
 ——— aspera, Spreng.

*Leucas cephalotes*, Spreng.

*Leonotis nepetaefolia*, R. Br.

*Solanaceae.*

*Solanum nigrum*, L.

———— *verbascifolium*, L.

———— *Jacquini*, Willd.

*Physalis minima*, L.

———— *flexuosa*, L.

*Datura alba*, Nees ab Esen.

———— *fastuosa*, L.

*Hyoscyamus niger*, L.

*Amarantaceae.*

*Desmochaeta atropurpurea*, D C.

———— *muricata*, D C.

*Digera arvensis*, Forsk.

*Alteranthera sessilis*, R. Br.

*Aerva javanica*, Juss.

*Celosia argentea*, L.

*Achyranthes aspera*, L.

———— *lappacea*, L.

*Amarantus spinosus*, L.

———— *oleraceus*, L.

———— *polygamus*, L.

———— *polygonoides*, L.

———— *tenuifolius*, Willd.

*Nyctagineae.*

*Boerhaavia diffusa*, L.

*Polygonaceae.*

*Rumex acutus*, Roxb.

*Polygonum Roxburghii*, Meisn.

———— *flaccidum*, Roxb.

———— *glabrum*, Willd.

———— *lanigerum*, R. Br.

*Chenopodiaceae.*

*Chenopodium album*, L.

———— *hybridum*, L.

*Salvadora persica*, L. non Wight.

*Euphorbiaceae.*

*Euphorbia Helioscopia*, L.

———— *dracunculoides*, Lam.

———— *hirta*, L.

———— *thymifolia*, Roxb.

———— *parviflora*, Roxb.

*Crotophora tinctoria*, A. Juss.

———— *plicata*, A. Juss.

*Phyllanthus Niruri*, L.

———— *simplex*, L.

*Flüggea retusa*, Roxb.

*Urticaceae.*

*Trophis aspera*, Retz.

*Ficus caricoides*. Roxb.

*Stilaginaceae.*

*Antidesma diandra*, Heyne.

*Amentiferae.*

*Salix tetrasperma*, L.

## ENDOGENÆ.

*Orchidaceae.*

*Zeuxine sulcata*, Lindl.

[*Hydrocharideae.*

*Hydrilla verticillata*, Rich.

*Palmaceae.*

*Phoenix sylvestris*, Roxb.

*Liliaceae.*

*Asparagus racemosus*, Willd.

*Asphodelus fistulosus*, L.

*Gloriosa superba*, L.

*Commelynaceae.*

*Commelyna communis*, L.

———— *Bengalensis*, Roxb.

*Aneilema nudiflora*, Kunth.

*Juncaceae.*

*Juncus bufonius*, L.

*Typhaceae.*

*Typha elephantina*, Roxb.

*Lemnaceae.*

*Lemna orbicularis*, Roxb.

*Potamogetonaceae.*

*Potamogeton indicus*, Roxb.

*Resticeae.*

*Eriocaulon quinquangulare*, Linn.

*Cyperaceae.*

*Carex Wallichianus*, Pres.

*Fimbristylis communis*, Kunth.

*Isolepis barbata*, R. Br.

——— *supina*, R. Br.

——— *lupulina*, Nees in Wight.

——— *squamosa*, Vahl.

*Scirpus mucronatus*, L.

——— *maritimus*, L.

——— *grossus*, Vahl.

*Eleocharis palustris*, R. Br.

*Kyllingia monocephala*, L.

——— *triceps*, L.

*Mariscus dilutus*, Nees ab Esen.

*Cyperus distans*, L.

——— *Irio*, L.

——— *rotundus*, L.

——— *difformis*, L.

——— *racemosus*, L.

——— *rotundus*, L.

——— *pumilus*, L.

——— *niveus*, Retz.

——— *compressus*, L.

——— *mucronatus*, Rottb.

——— *pygmaeus*, Vahl.

*Gramineae.**Oryza sativa*, L.*Zizania aristata*, Kunth.*Coiz Lachryma*, L.*Crypsis schoenoides*, Lam.*Phalaris canariensis*, L.*Alopecurus agrestis*, L.*Setaria glauca*, Bearw.*Panicum colonum*, Linn.———— *paludosum*, Roxb.———— *maximum*.———— *spicatum*, Roxb.———— *umbrosum*, Retz.———— *verticillatum*, Linn.———— *uliginosum*, Roxb.———— *cinncinum*, Retz.———— *repens*, Roxb.———— *Burmanni*, Retz.*Digitaria sanguinalis*, Scop.*Lappago racemosa*, Willd.*Pennisetum cenchroides*, Rich.

———— n. sp. ?

*Cenchrus echinatus*, Linn.*Aristida setacea*, Retz.*Pragmites karka*, Kunth.*Arundo bifaria*, Retz.*Cynodon Dactylon*, Pers.*Dactyloctenium ægypticum*, Willd.*Chloris barbata*, Swartz.*Leptochloa tenerrima*, Roen.*Eleusine indica*, Gaert.———— *verticillata*, Roxb.*Lolium temulentum*, L.*Avena fatua*, L.*Poa tenella*, L.———— *annua*, L.———— *flexuosa*, Roxb.

*Poa cynosuroides*, Retz.

—— *viscosa*, Retz.

*Eragrostis poæformis*, Link.

—— *verticillaris*.

—— *nutans*, Nees.

—— *interrupta*, Nees.

—— *Koenigii*.

*Perotis latifolia*, Ait.

*Saccharum spontaneum*, L.

*Imperata arundinacea*, Cyr.

*Apluda aristata*, Linn.

*Andropogon involutus*, Steud.

*Heteropogon contortus*, Pers.

*Cymbopogon Iwarancusa*, Roxb.

#### CRYPTOGAMÆ.

##### *Marsileaceae.*

*Marsilea quadrifolia*, L.

*Azolla pinnata*, L.

##### *Equisetaceae.*

*Equisetum arvense*, L.



*The S'ri-sukta, or Litany to Fortune; text and commentary, with translation.—By FITZ-EDWARD HALL, M. A.*

The period is now rapidly approaching when the contents of the Vedas and of their principal appendages will be unfolded. Among these appendages there is, however, at least one class of writings, not altogether devoid of interest, which an investigator labouring on Indian soil may, perhaps, treat of with less difficulty, if not more satisfactorily, than a scholar restricted to the limited appliances of Europe. I refer to the Vaidika intercalations known by the name of *khila*, *paris'ishṭa*, or, still oftener, with whatever correctness, *padas'ishṭa*. In rare instances do we meet with two manuscripts, unless one is punctually reproduced from the other, in which the incorporations of this stamp correspond throughout. Even as for the *Rig-veda*, numerous transcripts of it must be inspected before we can assure ourselves that we have exhausted the more ordinary apocryphal passages with which that collection is interspersed. At any rate, a careful examination of fifteen copies of it has conducted me to this conclusion.

Data are scarcely yet brought to light that would authorize one in pronouncing on the age and origin of the interpolations in the primitive Hindu scriptures, which I here contemplate. To turn, for a moment, from the Veda proper, we have, for a *khila*, the *Hari-vans'a*, a supplement to the *Mahābhārata*, and yet certainly not contemporaneous with the main poem. Undoubtedly it is later. On the other hand, of the *khilas* inserted in the *Rig-veda*, while many are, without question, of comparatively modern date, there are a few, among those not traceable to other Vedas, which discover, to some extent, characteristics of archaism. If not very good imitations, they must, then, be accounted genuine relics of antiquity. The traditional, but sufficiently uncritical, belief of the pandits, as touching the Vaidika *khilas*, is, that they are excerpts, one and all, from branches of the Veda no longer extant in their integrity.\*

\* In Central India, at all events, females of Bráhmanical descent are allowed to read the Vaidika *khilas*, with their *phala-s'rutis*, and those of sacred hymns generally. A *phala-s'ruti* is an appendant text of scripture, importing, in strict-

That some of them are ancient, we have so good an authority as the compiler of the Laws of the Mánava;\* and Yáska, while citing a fragment of a *khila*, does not afford the slightest indication that it was regarded, in his age, as spurious, or even as deuterocanonical.† A dissertation of a recent speculator would impress the conviction, which is commonly entertained by the Hindus, that the *S'ri-sūkta* was once comprehended in some portion, now lost, of the *Atharva-veda*.‡

ness, the benefit to be derived from repeating the words to which it is attached.

Oblivion or disregard is, however, manifested, in this permission, of the familiar declaration :

स्त्रीशूद्रद्विजबन्धूनां त्रयी न श्रुतिगोचरा ।

इति भारतमाख्यानं व्यासेन मुनिना कृतम् ।

‘ Women, serviles, and merely titular Bráhmans are not to listen to the three Vedas. Hence was the history of the *Bhárata* devised by Vyása the holy sage.’

\* III., 232. Kullúka Bhaṭṭa instances, in exemplification of a *khila*, a *S'ri-sūkta*; the very one, it may be, now published. In company with it he names the *S'iva-sankalpa*. The beginning of the thirty-fourth chapter of the *Vája-saneyi-sanhita* is still popularly known by that designation.

† Professor Rudolph Roth's *Zur Litteratur und Geschichte des Weda*, p. 31; and *Nirukta*, Erläuterungen, p. 58.

‡ I here extract a part of Govinda S'ástrí's commentary on the forty-fifth couplet of the *Atharvaṇa-rahasya*: काशीखण्डे लक्ष्मीस्तवे आथर्वणलक्ष्मीसूक्तश्रुतमन्त्रवर्णा उपबृंहिताः। अयम्

त्वं श्रीरुपेन्द्रसदने मदनैकमातरं

ज्योत्स्नाऽसि चन्द्रमसि चन्द्रमनोहरास्ये ।

सूर्ये प्रभा सितजगत्त्रितये प्रभासि

लक्ष्मी प्रसीद सततं नमतां शरण्ये ॥

त्वं जातवेदसि सदा दहनात्मशक्तिरु

वेधास्त्वया जगदिदं विविधं विदध्यात् ।

विश्वम्भरोऽपि बिभृयादखिलं भवत्या

लक्ष्मी प्रसीद सततं नमतां शरण्ये ॥

इत्यादिना शब्दसारूप्यादर्थाविरोधाच्च काशीखण्ड उपबृंहणं द्रष्टव्यम् । नन्वथर्वसंहितायां श्रीसूक्तादर्शनाच्चीसूक्तमथर्वणो नास्तीति



The *S'ri-sūkta*, when seen in the *Rig-veda*, occurs, in my experience, invariably at the end of the fifth *maṇḍala*. Though brief, it is by no means insignificant. Indeed, it has been selected for present notice on the ground of its marked pre-eminence among the

चेन्न । सप्तशतीव्याख्यादिषु श्रीसूक्तमाथर्वणप्रसिद्धमिति श्रियोक्तेरु-  
च्छिन्नशाखासु तत्कल्पनस्यैवाचित्यात् । अत एव लक्ष्मीसूक्तनिरुक्ते ।

वैनतेय सोमं पिब सोमं पिबतु वृत्रहा ।

सोमं धनस्य सोमिनो मद्भ्यं ददातु सोमिनः ॥

इति मन्त्रव्याख्याने । यतः सर्वे देवा धनरूपा उक्तास्तस्मात् तेनैव धनेन श्रौतस्मार्त्तकर्माद्यनुष्ठाना अभिभवन्ति । तदेवाऽभियज्ञगाथा गीयते । इत्युपक्रम्य वैनतेय विनतायाः पुत्र गरुत्मंस्वमस्माभिः कृतं सोमं सोमरसं पिब पानं कुरु । वृत्रहेन्द्र सोमं पिबतु सोमपानं करोतु । सोमिनो यागकर्त्तारः सोमसम्बन्धिनो ऋत्विजः सोमं पिबन्तु सोमपानं कुर्वन्तु । सोमिनो यज्ञसम्बन्धिनो देवताश्च मद्भ्यं यज्ञफलं धनाद्यभिर्दृष्टिं च ददातु दिशन्तु । इतोदं व्याख्यानमग्निसन्निधौ जप्त्वा सर्वान् कामानवाप्नोत्यनेनाऽग्निसन्निधौ तज्जपप्राशस्त्यं दर्शितम् । वैदिकाभावे प्रयोजनमनुद्दिश्येति न्यायेन तज्जपफलप्रदर्शनस्योन्मत्तप्रलाप इवाऽप्रामाण्यापत्तेः । असूक्तविशेषस्तु मेरुतन्त्रे व्यक्त इत्यन्यत्र विस्तरः ।

A passage is given, first of all, professedly from the *Lakṣmī-stava* of the *Kāś'ī-khaṇḍa*. It runs thus: 'Unrivalled mother of Madana, abiding in the mansion of Upendra, thou art S'ri. With countenance delightful to the mind as is the moon, to the moon thou art lustre, and radiance to the sun. Effulgent art thou throughout the bright triple world. Constantly be thou benignant, O Lakṣmī, protectress, to thy adorers. Ever art thou the intrinsic combusive energy of fire. Vedhas, through thy agency, created this multiform universe Vis'wambhara also, by means of thee, has upheld it all. Constantly be thou benignant, O Lakṣmī, protectress, to thy adorers.' This, urges Govinda, on the argument of verbal similarity and indiscrepancy of import, is paraphrased from the *S'ri-sūkta* of the *Atharvaṇa-veda*. Some nameless scholiast of the *Sapta-s'atī* is next alleged to have spoken of 'the *S'ri-sūkta*, notoriously A'tharvaṇa. From the *Lakṣmī sūkta nirukta* a couplet is then adduced, with its explanation: and it should thus seem—as will be seen in the further progress of this paper—that not only the *S'ri-sūkta*, but its appendix as well, has enjoyed an exposition other than that which I now print. Govinda tells us, in fine, that somewhere else it is shown at length that the *S'ri-sūkta* is the theme of a detailed account in the *Meru-tantra*. All this is abundantly flaccid and unsatisfying.

compositions to which it belongs. In legal treatises its use is pre-

The first book of the *Vishṇu-purāṇa*, ninth chapter, has these words, in the narration of the churning of the ocean :

ततः स्फुरत्कान्तिमतिं विक्रासिकमले स्थिता ।  
 श्रीदेवी पयसस्तस्मादुत्थिता दृतपङ्कजा ॥ ६६ ॥  
 तां तुष्टुवुर्मुदा युक्ताः श्रीसूक्तेन महर्षयः ।

‘ Subsequently, seated on an expanded lotus beaming with brilliancy, the goddess S’rī, bearing a lotus, emerged from that *sea of milk*. Joyfully did the great sages laud her with the *S’ri-sūkta*.’

According to the commentator, who repeats its commencement, that hymn was the very one with which we are concerned. No one can know more about the matter than he knew : and he can have known nothing.

Another melody addressed to S’rī, but claiming Indra for its author, will be found in the same chapter of the *Vishṇu purāṇa* that has just been quoted from, beginning with the hundred and sixteenth stanza, and ending with the hundred and thirty-first.

Still another set of verses, eulogistic of Lakshmī, extending to only seven couplets, is cited, agreeably to one version, in the *Dāna-kamalākara* and elsewhere. Colebrooke has translated them in his *Miscellaneous Essays*, Vol. I., pp. 179 and 180. Here is the first of them :

या लक्ष्मीः सर्वदेवानां या च देवेष्ववस्थिता ।  
 धेनुरूपेण सा देवी मम शान्तिं प्रयच्छतु ॥

But of much more customary occurrence than any of the before mentioned poems is the *Lakshmī-hṛidaya-stotra*, in one hundred and six stanzas. It purports, in its colophon, to be derived from the *Uttara-kāṇḍa* of the *Atharva-rahasya*, whatever that work may be. The introductory lines are subjoined :

वन्दे लक्ष्मीं परशिवमयीं शुद्धजाम्बूनदाभां  
 तेजोरूपां कनकवसनां सर्वभूषोज्ज्वलाङ्गीं ।  
 बीजापूरं कनककलशं हेमपद्मं दधानां  
 चाद्याशक्तिं सकलजननीं विश्णुवामाङ्कसंस्थाम् ॥

‘ To Lakshmī—identical with supreme prosperity ; lustrous as pure gold ; splendour incorporate ; of apparel like gold ; whose person glitters with all manner of embellishments ; bearing a citron, a golden vase, and an aureate lotus ; the primæval energy ; the universal genitrix ; reposing on the left thigh of Vishṇu—I make obeisance.’

scribed for more than one important solemn ceremony,\* and, especially, at regal inaugurations. As a Vaidika *khila*, it likewise stands by itself, I believe, in having induced a commentary.

Neglecting inferior readings, as hardly meriting specification, I have collated five manuscripts of the scholia now published. The oldest of them which bears a date was transcribed only sixty-five years ago. In one of my copies, they are attributed to one Vidyādhara; another names Vidyā Tīrtha Maheśwara as their author; a third assigns them, somewhat incredibly, to Vidyāranya Swāmin; and the rest are silent.

In the absence of smaller types provided with the accents, the exhibition of these marks has been dispensed with in the text of the ensuing hymn. Nor has it seemed necessary, as for the translation, to state at full all the optional interpretations suggested in the gloss.

## श्रीसूक्तम् ।

हिरण्यवर्णां हरिणीं सुवर्णरजतखजाम् ।

चन्द्रां हिरण्ययीं लक्ष्मीं जातवेदा म आ वह ॥ १ ॥

अस्याऽर्थः । हे जातवेदः जानाति वेदं । जातप्रज्ञो वा । जाते जाते विद्यत इति वा । हे अग्ने त्वं हिरण्यवर्णां हिरण्यस्य सुवर्णस्य वर्णः कान्तिस्तद्वद् वर्णा यस्यास्ताम् । हरिणीं हरितवर्णाम् । हरिणीरूपधरां वा ।

श्रीधृत्वा हरिणीरूपमरण्ये सञ्चचार ह ।

इति देवीपुराणाच्च । सुवर्णरजतखजां सुवर्णस्य रजतस्य च पुष्पाणि सुवर्णाणि रजतानि तेषां खक् माला यस्यास्ताम् । खक्साहचर्यात् पुष्पाणीत्यवगम्यते । पुष्पसादृश्यात् पुष्पे फले लुक् । आपं चैव हलन्तानामित्याप् । यद्वा सुवर्णरजतविकृतशृङ्खलाम् । मयु वर्णा यस्य तत् सुवर्णं यद् रजतं तत्पुष्पखजाम् । तद्विकृतशृङ्खलां वा । चन्द्रां चन्द्रवत् प्रकाशमानाम् । तद्रूपेणाऽवस्थितां वा । हिरण्ययीं

\* Noticeably during the *S'ārādī-nava-rātra*, or nine nights in the light fortnight of Āswina, one of the leading Hindu festivals. It is indispensable to read the *Śrī-sūkta* at that season. The *Lakṣmī-hṛdaya-stotra* and *Sapta-s'atī* are also largely perused at the same time.

हिरण्यस्वरूपाम् । हिरण्यविग्रहां वा । लक्ष्मीं लक्षणवतीम् । लक्ष्मी-  
र्लाभाद् वा लक्षणाद् वेत्यादिनिरुक्तात् । [नैगमकाण्डे ४. १०.] एवं-  
रूपां श्रियं मे मच्चं मदर्थमावहाऽऽकृय । अग्नेर्देवहोतृत्वादाक्कानं  
तदधीनमिति भावः । अग्निर्वै देवानां होतृतेति श्रुतेः ॥ १ ॥

तां म आ वह जातवेदो लक्ष्मीमनपगामिनीम् ।

यस्यां हिरण्यं विन्देयं गामश्वं पुरुषानहम् ॥ २ ॥

अस्याऽर्थः । हे जातवेदः अग्ने त्वमनपगामिनीमपगमनरहितामन-  
पायिनीमित्यर्थः । तां वक्ष्यमाणलक्षणां लक्ष्मीं मे मच्चमावहाऽऽकृय ।  
यस्यां श्रीदेव्यामावाहितायां सत्यां हिरण्यं सुवर्णं गां धेनुमश्वं वाजिनं  
पुरुषान् पुत्रपौत्रमित्रदासभूतानहं विन्देयं प्राप्नुयाम् ॥ २ ॥

अश्वपूर्वां रथमध्यां हस्तिनादप्रबोधिनीम् ।

श्रियं देवीमुपकृये श्रीर्मा देवी जुषताम् ॥ ३ ॥

अस्याऽर्थः । अश्वपूर्वामश्वाः पूर्वे पुरोगा यस्यास्ताम् । अथवाऽश्व-  
पूर्वामश्वैः पूर्णां परिपूर्णामिति केचित् । रथमध्यां रथा मध्ये यस्या-  
स्ताम् । हस्तिनादप्रबोधिनीं हस्तिनां गजानां नादेन वृंहितेन प्रबो-  
धिनीं प्रकर्षेण क्षापयित्रीम् । देवीं देवनशीलाम् । द्योतनशीलां वा ।  
श्रियं श्रयणीयाम् । सेनारूपां वा । उपकृये समीपं प्रत्याकृये । एता-  
दृशी देवी श्रीः मा मां जुषतां सेवताम् ॥ ३ ॥

कां सोस्मितां हिरण्यप्राकारमाद्रां ज्वलन्तीं तप्तां तर्पयन्तीम् ।

पद्मे स्थितां पद्मवर्णां तामिहोपकृये श्रियम् ॥ ४ ॥

अस्याऽर्थः । कां वाङ्मनसयोरगोचरां दुर्निरूपस्वरूपामित्यर्थः ।  
ब्रह्मरूपां वा । को ह वै नाम प्रजापतिरिति श्रुत्यन्तरात् । क इति  
ब्रह्मणो नामेति पुराणाच्च । सोस्मितां आ ईषदासमन्तादुद्गतं  
यत् स्मितं हास्यं तद्युक्ताम् । उपान्त्यलोपश्चान्दसः । हिरण्यप्राकारां  
हिरण्यस्य सुवर्णस्य प्राकार आवरणं यस्यास्ताम् । हिरण्यप्रकृत्य आ-  
कारः आकृतिर्यस्यास्तामिति वा । आद्रां क्लिन्नां क्षीरोदधेरुत्पन्नत्वात् ।  
रुद्ररूपां वा । रुद्रशब्दोऽत्राऽमूर्धन्यस्वरदिः । आद्रया रुद्र इत्यादौ  
तथा दर्शनात् । अन्यद् बाहुलकम् । ज्वलन्तीं प्रकाशमानाम् । तप्तां  
प्रीतामपि च तर्पयन्तीं भक्तान् मनोरथैरिति शेषः । पद्मे स्थितां  
कमले निघण्टामासीनाम् । पद्मवर्णां कमलवर्णाम् । तामिति प्रसिद्धां  
श्रियमिहोपकृये समीपं प्रत्याकृये ॥ ४ ॥

चन्द्रां प्रभासां यशसा ज्वलन्तीं श्रियं लोके देवजुष्टामुदाराम् ।  
तां पद्मिनीमीं शरणं प्रपद्येऽलक्ष्मीं नश्यतां त्वां वृणोमि ॥ ५ ॥

अस्यार्थः । अत्र प्रपद्ये इत्यस्याऽनन्तरमहंशब्दप्रक्षेपः प्रामादिकः ।  
चन्द्रां चन्द्रवत् प्रकाशमानाम् । प्रभासां प्रकृष्टा भाः कान्तिर्यस्या-  
स्ताम् । आपं चैवेत्याप् । यशसा कीर्त्या ज्वलन्तीं प्रकाशमानाम् ।  
लोके स्वर्लोके देवजुष्टां देवैरिन्द्राद्यैर्जुष्टां सेविताम् । प्रीतां वा ।  
उदारां वदान्याम् प्रगल्भां वा । पद्मिनीं पद्मलतारूपाम् । पद्माकारां  
वा । ईमिति निपातोऽनर्थकः । मिताक्षरेष्वनर्थकाः कमीमिद्विति  
यास्तवचनात् । [नैगमकाण्डे १०. ६.] ईकारवाच्यां वा । तां श्रियं  
लोके इह लोके शरणं रक्षित्रीं प्रपद्ये प्रपन्नोऽस्मि । अहमिति शेषः ।  
अतः हे श्रीः मे ममाऽलक्ष्मीः अश्रीः नश्यतां नाशं प्राप्नोतु । एतादृशीं  
त्वां वृणोमि । अन्तर्भावितवर्णार्थात् वृणे शरणत्वेन स्वीकुर्वे ॥ ५ ॥ वर्गः १ ।

आदित्यवर्णे तपसोऽधि जातो वनस्पतिस्तव वृक्षोऽथ बिल्वः ।

तस्य फलानि तपसा नुदन्तु मा या अन्तरा याश्च बाह्या अलक्ष्मीः ॥ ६ ॥  
वृक्षोऽथेत्यतः परमपि पर्वरूपं बाहुलकात् । आदित्यवर्णे आदि-  
त्यस्य सूर्यस्य वर्ण इव वर्णो यस्यास्तस्याः सम्बोधनं हे श्रोस्तव तपसः  
नियमाद् हेतोः वनस्पतिः ।

अपुष्याः फलवन्तो ये ते वनस्पतयः स्मृताः ।

इति मानवस्मरणात् [१. ४७.] । बिल्वः बिल्वनामको वृक्षः द्रुमो-  
ऽधिजातः प्रादुर्भूतः । तत्करादिति शेषः । कात्यायनः ।

बिल्वो लक्ष्म्याः करेऽभवत् ।

इति वामनपुराणात् । अथेत्यनन्तरं तस्य बिल्वस्य फलानि पक्वानि  
शलाटुकानि तपसा त्वत्तपसा त्वदनुग्रहेणेत्यर्थः । अन्तरा अन्तरि-  
न्द्रियसम्बन्धिन्यो याश्च बाह्या बहिरिन्द्रियसम्बन्धिन्यस्ता अलक्ष्मीर-  
श्रियो नुदन्तु अपनुदन्तु निवारयन्त्वित्यर्थः ॥ ६ ॥

उपैतु मां देवसखः कीर्तिश्च मणिना सह ।

प्रादुर्भूतोऽस्मि राज्येऽस्मिन् कीर्तिमृद्धिं ददातु मे ॥ ७ ॥

अस्यार्थः । हे श्रीः देवसखः देवो महादेवस्तस्य सखा कुबेरः ।  
कीर्तिश्च कीर्त्यभिमानिनी दक्षकन्या देवता । कुबेरकोशशाला वा ।  
सा च मणिना चिन्तामणिना मणिभद्रेण कोशाध्यक्षेण सह सार्ध-  
मुपैतु उपगच्छतु । अहमस्मिन् राज्ये जनपदे प्रादुर्भूतोऽस्मि उत्पन्ना-



ऽस्मि । सङ्गत्य कीर्तिं यशः कोशं वा ऋद्धिं सर्ववस्तुसमृद्धिं मे मह्यं  
ददातु यच्छतु ॥ ७ ॥

क्षुत्तिपासामलां ज्येष्ठामलक्ष्मीं नाशयाम्यहम् ।

अभूतिमसमृद्धिं च सर्वां निर्णुद मे गृह्णात् ॥ ८ ॥

अस्यार्थः । क्षुत्तिपासामलामशनदृष्ट्यामलिनात्मिकाम् । ज्येष्ठां वृद्धां  
श्रीप्रागुत्पन्नमित्यर्थः । अलक्ष्मीमश्रियमहं नाशयामि नाशं प्रापयामि ।  
हे श्रीस्त्वमभूतिमसम्पत्तिं तथा सर्वां समृद्धिमनभिष्टुद्धिं मे मम  
गृह्णात् गृह्णात् निर्णुद निवारय ॥ ८ ॥

गन्धद्वारां दुराधर्षां नित्यपुष्टां करीषिणीम् ।

ईश्वरीं सर्वभूतानां तामिहोपाङ्गये श्रियम् ॥ ९ ॥

अस्यार्थः । गन्धो घ्राणग्राह्यो गुणः द्वारं लक्षणं यस्यास्ताम् ।  
दुराधर्षां केनाऽपि धर्षयितुमशक्याम् । नित्यपुष्टां नित्यं निरन्तरं  
सस्यादिभिः पुष्टां समृद्धाम् । करीषिणीं करीषः शुष्कगोमयादिस्त-  
द्वर्तो गवाश्वादिबज्रपशुसमृद्धामिति यावत् । सर्वभूतानां सर्वप्राणिना-  
मीश्वरीमधिसृष्टां च । आधारभूतां वा । तां भूरूपां श्रियमिह लोके  
उपाङ्गये उपाङ्गये समीपं प्रत्याङ्गये ॥ ९ ॥

मनसः काममाकूतिं वाचः सत्यमशीमहि ।

पशूनां रूपमन्नस्य मयि श्रीः श्रयतां यशः ॥ १० ॥

अस्यार्थः । हे श्रीः मनसः कामं मनोऽभिलाषम् । आकूतिं सङ्कल्पं  
च । वाचः वागिन्द्रियस्य सत्यं याचार्थम् । पशूनां गोमहिष्यादीनां  
रूपं क्षीरादि । अन्नस्याऽत्तीत्यन्नं तस्याऽदनीयस्य यवब्रीह्यादे रूपं  
भक्ष्यादिचतुर्विधं चाऽशीमहि लभेमहि । श्रीः सम्पत्तिः यशः कीर्तिश्च  
मयि श्रयतामाश्रयताम् ॥ १० ॥ वर्गः २ ॥

कर्दमेन प्रजा भूता मयि सम्भव कर्दम ।

श्रियं वासय मे कुले मातरं पद्ममालिनीम् ॥ ११ ॥

अस्यार्थः । कर्दमेन कर्दमाख्येन पुत्रेण प्रकृष्टा जा अपत्यं यस्याः  
सा सुपुत्रेत्यर्थः । जामपत्यमिति यास्कवचनात् । [नैगमकाण्डे ३. ६.]  
भूता अभवत् । अतः हे कर्दम श्रीपुत्र त्वं मयि मदीयगृहे सम्भव  
संवस । पद्ममालिनीं कमलमालाधारिणीं मातरं तव जननीं श्रियं  
मे मम कुले वंशे वासय निवासय ॥ ११ ॥

आपः सृजन्तु स्निग्धानि चिक्षीत वस मे गृहे ।

नि च देवीं मातरं श्रियं वासय मे कुले ॥ १२ ॥

अस्याऽर्थः । आपः जलाभिमान्यो देवताः । स्निग्धानि स्नेहयुक्तानि कार्याणि सृजन्तु उत्पादयन्तु । अपां स्नेहगुणवत्त्वादिति भावः । हे चिक्षीत चिक्षीताख्य श्रीपुत्र मे मम गृहे गेहे वस निवस । चाऽपि च देवीं मातरं श्रियं मे मम कुले वंशे निवासय संवासय ॥ १२ ॥

आर्द्रां पुष्करिणीं पुष्टिं पिङ्गलां पद्ममालिनीम् ।

चन्द्रां हिरण्ययीं लक्ष्मीं जातवेदो म आ वह ॥ १३ ॥

अस्याऽर्थः । आर्द्रां आर्द्राङ्गाम् । पुष्करिणीं अभिषेकोद्युक्तां दिग्गज-शृङ्खलेति भावः । पुष्करशब्दे गजशृङ्खलायवाचकः । पद्ममालिनीं पद्मवतीम् । पद्मलतारूपां वा । पुष्टिं पुष्ट्याभिमानिनीम् । पुष्टिरूपां वा । पुष्टिरूपेण संस्थितेति मार्कण्डेयवचनात् । पिङ्गलां पिङ्गलवर्णाम् । पद्ममालिनीमित्यादि सिद्धमन्यत् ॥ १३ ॥

आर्द्रां यःकरिणीं यष्टिं सुवर्णां हेममालिनीम् ।

सूर्यां हिरण्ययीं लक्ष्मीं जातवेदो म आ वह ॥ १४ ॥

अस्याऽर्थः । आर्द्रां आर्द्राङ्गाम् । यःकरिणीं यष्टिकरां वेत्रहस्ता-मित्यर्थः । टिलोपश्चान्दसः । तद्वतीं दण्डकारिणीं वा । दण्डकरां वा । यष्टिं दण्डरूपाम् । सुवर्णां शोभनवर्णाम् । हेममालिनीं हेमविकृत-मणिशृङ्खलादिमालावतीम् । सूर्यां सूर्यवत् प्रकाशमानाम् । तद्रूपां वा । सिद्धमन्यत् ॥ १४ ॥

तां म आ वह जातवेदो लक्ष्मीमनपगामिनीम् ।

यस्यां हिरण्यं प्रभूतं गावो दास्योऽश्वान् निन्देयं पुरुषानहम् ॥ १५ ॥

अस्याऽर्थः । प्रभूतं भूयिष्ठम् । गावः गाः । दास्यः परिचारिकाः । उभयत्र शस् । इयम्क् द्वितीयया ऋचा व्याख्याता । अर्थे इयान् विशेषः ॥ १५ ॥ वर्गः ३ ॥

इति श्रीसूक्तभाष्यं समाप्तम् ।

## TRANSLATION.

First *varga*.

1. Do thou, Játavedas,\* on my behalf invoke Lakshmí : radiant as gold, *and as* fulvous ; necklaced with gold and silver *flowers* ; a moon *in glory* ; of the nature of gold.

2. Do thou, Játavedas, on my behalf invoke that Lakshmí : who passes not away ; who *being present*, I shall possess gold, milch cattle, horses, and human beings.†

3. I invoke the goddess S'rí *to draw* near : with steeds in her van, and cars in the midst, especially announcing herself in the cry of elephants.‡ May the divine S'rí be propitious to me.

4. I invoke that S'rí *to draw* near : transcending expression and conception ;§ gently smiling ; environed with gold ; moist ; effulgent ; satisfied ; the satisfier ; sitting on a lotos ; lotos-hued.

5. I betake myself,|| for refuge, to that S'rí : as it were, a most brilliant moon ; splendid with celebrity ; honoured, by the gods, in the world *above* ; bountiful ; a lotos *in loveliness*. Thee do I solicit, that my evil fortune may be removed.

Second *varga*.

6. Resplendent as the sun, by reason of thy austerities the cryptogamous *bilwa*¶ tree was generated. Through thy favour may its fruit henceforth preclude, for me, misfortunes within and without.

\* He is identified with Agni, or Fire. Etymologically, the word is variously accounted for. Even our scholiast gives three explanations of it.

† Namely, children, grandchildren, friends, and thralls, says the commentator.

‡ In this stanza, Lakshmí is regarded as an army moving to victory. Further ; as elephants are found only with the wealthy, their presence betokens her.

The scholiast notes the lection अश्वपूर्णा, 'profuse of horses,' for अश्वपूर्वाम् । Many manuscripts of the pure text have, in place of प्रबोधिनीं, प्रमोदिनीं, 'gladdened.'

§ This epithet, it is asserted, is denoted by the pregnant monosyllable क । Just below, S'rí is styled moist, as having been churned from the milky ocean. Hence one of her titles is अम्बिपुत्री 'daughter of the sea.'

|| Several of my copies of the mere text interpose अहं after शरणं an addition which the commentator censures.

¶ The aegle marmelos. According to the *Támana purána*, Lakshmí bore it in her hand.



7. May the friend of the gods,\* and Renown, with the gem, be secured to me. In this realm I was brought forth. Do thou bestow upon me fame and a prosperous estate.

8. Calamity, squalid with hunger and thirst, the elder *sister of fortune*,† would I repel. Turn thou away from my dwelling all poverty and want of increase.

9. I invoke that *Srī* to draw near : characterised by odour ; hard to be conquered ; ever teeming *with harvests* ; resident in coudung ; mistress over all creatures.‡

10. May I obtain the wish of *my heart*, *the object of my vow*, veracity of speech, the products of cattle, and *the various descriptions of edibles*.§ May prosperity abide in my *habitation*, and renown.

\* Kubera, says the expositor. He is attributively called, to be sure *व्यम्बकसख* 'the friend of Trymbaka' or *S'iva* : but it is exceedingly questionable whether any very ancient authority designates this divinity by the simple word *देव*, or indeed, takes any note of him whatever. *Kīrti*, or Renown, was daughter of Daksha. The gem spoken of is said to be the famous 'jewel of reflection,' the Hindu cap of Fortunatus. Or Manibhadra may be meant ; Kubera's treasurer.

A modern air, it is obvious to observe, infects the whole of this stanza ; and the same remark is applicable to that which follows.

† This relationship I find predicated in the *Kārtika mātmya*, a section of the *Sanatkumāra sanhitā*.

‡ The goddess is here viewed as one with the earth. It is still a notion everywhere current among the Hindus, that Lakshmi delights to lurk in coudung.

§ By the products of cattle the several modifications of milk are signified. Esculents are classed as those to be licked, those to be drunk, those to be sucked, and those to be masticated.

This couplet, slightly altered, occurs in the *Yajur-veda*, *Vājasaneyi-sanhitā*, XXXIX., 4 ; p. 973 of the edition of Professor Weber :

मनसः काममाकूतिं वाचः सत्यमशीय ।

पशूनां रूपमन्नस्य रसो यशः श्रीः श्रयतां मयि स्वाहा ॥

Mahādhara explains this to the following effect : ' May I obtain the desire of *my heart*, *the fruit of my toil*, and truthfulness of utterance. May the ornament of cattle, the savour of aliment, fame, and fortune, continue in my *abode*. Be this oblation effectual.'

Third *varga*.

11. Excellent progeny has been born *to thee*, in Kardama.\* Do thou, Kardama, inhabit, with *me* my abode ; and cause that *S'rī* thy mother, lotos-garlanded, shall dwell with my family.

12. May water† perform *its* humid offices. Tarry in my domicile, Chiklīta ; and make that *S'rī*, *thy* divine mother, shall remain in my household.

13. Do thou, Játavedas, on my behalf invoke Lakshmī: moist ; accompanied by lotoses : thrift *personified* ; yellow ; lotos-garlanded ; a moon *in glory* ; of the nature of gold.‡

14. Do thou, Játavedas, on my behalf invoke Lakshmī: moist ; verge in hand ; a mace *to wrong-doers* ; of comely complexion ; wearing a golden necklace ; a sun *in glory* ; of the nature of gold.

15. Do thou, Játavedas, on my behalf invoke that Lakshmī: imperishable, who *being attendant*, I shall acquire gold in exuberance, kine, bondwomen, horses, and human beings.§

Manuscripts of the uncommented text of the *S'rī sūkta* usually give, in sequence to the hymn, more or fewer of the couplets which here follow. The preference has purposely been accorded to the most copious form of the adjunct thus constituted.||

\* Of Kardama and Chiklīta, as sons of Lakshmī, I have seen no other mention than in couplets contained in this paper.

† By metonymy, for the regents of water. So says the glossarist.

‡ The expositor proposes a second, but far-fetched, interpretation of the term which I render 'accompanied by lotoses.'

Yellow is not the ordinary acceptation of पिङ्गल | Perhaps 'tawny' is here, as elsewhere, the precise equivalent. Colebrooke, in one place, represents it by "tan-coloured." Algebra, &c., from the Sanskrit, p. 228. Lakshmī is something of a chameleon, as will be perceived in the course of this article.

The second half of the thirteenth stanza is a literal repetition from the first. With the change of a single word, it is found again in the fourteenth. In several of my manuscripts of the text, the thirteenth and fourteenth stanzas are transposed and confused.

§ This couplet simply contains two words more than the second, and does not differ from it, except in them, as to tenor.

|| Since preparing these pages for the press, I have received, from my very learned friend, Dr. Max Müller, a copy of the third volume of his *Rig-veda-sanhita* and Śāyana's commentary. In his *Varietas Lectionis* I see that the *Srī-sūkta* is exhibited at large, together with the verses above referred to. My most extended reading of them turns out to be fuller than his by only half a stanza.

यः शुचिः प्रयतो भूत्वा जुहुयादाज्यमन्वहम् ।  
 सूक्तं पञ्चदशर्चं च श्रीकामः सततं जपेत् ॥ १ ॥  
 पद्मानने पद्मऊरु पद्माक्षी पद्मसम्भवे ।  
 तन् मे भजसि पद्माक्षि येन सौख्यं लभाम्यहम् ॥ २ ॥  
 अश्वदायी गोदायी धनदायी महाधने ।  
 धनं मे लभतां देवि सर्वकामांश्च देहि मे ॥ ३ ॥  
 पुत्रपौत्रधनं धान्यं हस्त्यश्वादि गवे रथम् ।  
 प्रजानां भवसी माता आयुष्मन्तं करोतु मे ॥ ४ ॥  
 धनमग्निर्धनं वायुर्धनं सूर्या धनं वसुः ।  
 धनमिन्द्रो वहस्पतिर्वरुणं धनमश्रुते ॥ ५ ॥  
 वैततेय सोमं पिब सोमं पिबतु वृत्रहा ।  
 सोमं धनस्य सोमिनो मह्यं ददातु सोमिनः ॥ ६ ॥  
 न क्रोधो न च मात्सर्यं न लोभो नाऽशुभा मतिः ।  
 भवन्ति कृतपुण्यानां भक्तानां श्रीसूक्तं जपेत् ॥ ७ ॥  
 सरसिजनिलये सरोजहस्ते  
 धवलतरा शुभगन्धमाल्यशोभे ।  
 भगवति हरिवल्लभे मनोज्ञे  
 त्रिभुवनभूतिकरि प्रसीद मह्यम् ॥ ८ ॥  
 विष्णुपत्नीं क्षमां देवीं माधवीं माधवप्रियाम् ।  
 लक्ष्मीं प्रियसखीं देवीं नमाम्यच्युतवल्लभाम् ॥ ९ ॥  
 महालक्ष्मीं च विद्महे विष्णुपत्नीं च धीमहि ।  
 तन् नो लक्ष्मीः प्रचोदयात् ॥ १० ॥  
 पद्मासने पद्मिनि पद्मपत्रे  
 पद्मालये पद्मदलायताक्षि ।  
 विश्वप्रिये विश्वमनोऽनुकूले  
 त्वत्पादपद्मं हृदि सन्निधत्स्व ॥ ११ ॥  
 आनन्दं कर्दम ओदक्षिक्तीत इति विश्रुताः ।  
 ऋषयः त्रियपुत्राश्च श्रीर्देवीर्देवता ॥ १२ ॥  
 श्रीवर्चस्वमायुष्यमारोग्यमाविधाच्  
 शुभमानं महीयते ।  
 धनं धान्यं पशुं बज्रपुत्रलाभं

शतसंवत्सरं दीर्घमायुः ॥ १३ ॥

ऋणरोगादिदारिद्र्यं पापक्षुद्रपमृत्यवः ।

भयशोकमनस्तापा नश्यन्तु मम सर्वदा ॥ १४ ॥

#### TRANSLATION.

1. Let that pure person who diligently sacrifices, day by day, with clarified butter, constantly ruminate, *if* desirous of fortune, the hymn of fifteen stanzas.

2. Lotos-thighed and lotos-eyed *art thou*. Lotos-faced, lotos born, lotos-eyed, in such wise befriend me, that I may obtain felicity.

3. Giver *art thou* of horses, giver of kine, and giver of wealth. Most opulent, may riches accrue to me : and do thou, goddess, bestow upon me all *my* desires.

4. Grant unto me sons, grandsons, affluence, corn, elephants, horses, kine, and chariots, *and to be* long-lived : *for* thou art the mother of sentient creation.

5. The fire possesses wealth ; the wind, wealth ; the sun, wealth ; the Vasus, wealth ; Indra, wealth ; and Brihaspati and Varuna, wealth.

6. Son of Vinatá, quaff the moon-plant juice. May Vṛitrahau imbibe the moon-plant juice. *May* the ministrant priests, *procurers* of riches, *partake of* the moon-plant juice. May the gods confer upon me *the requital of sacrifice*.\*

7. Be the litany to Fortune meditated : *for* of meritorious votaries there is no resentment, nor malevolence, no avarice, no sinister sentiment.

8. Lotos-tenemented, lotos-handed, supereminently fair, beautiful with white fragrance and *white* blossoms, adorable, beloved of Hari, lovely, source of the vigour of the threefold universe, be gracious to me.

\* This couplet has before been alluded to, in the foot-note to p. 123. The gloss there taken from the *Lakshmī-sūkta-nirukta* has helped me to one or two suggestions.

9. To the spouse of Vishnu, *one with* the earth, the resplendent, MádHAVÍ, the cherished of MádHAVA, the kind to her attendants, the dear to Achyuta, the goddess LakshMÍ, I offer salutation.

10. We recognise the great LakshMÍ; and we reflect on the consort of Vishnu. Therefore may LakshMÍ speed us.

11. Lotos-seated, resembling the leaf of the lotos, dwelling in the lotos, of eyes long as the petal of the lotos, PadminÍ, loved of all, propitious to the wishes of the world, place thy lotos-foot in *my* heart.

12. The renowned A'nanda, Kardama, S'rída, and Chiklíta, issue of S'rí,\* *are the Rishis of this ode*: the goddess S'rí *is its* divinity.

13. Of auspicious dignity, longeval, and exempt from sickness does she render *her worshipper*: and wealth, grain, cattle, the gain of numerous offspring, and life prolonged to a hundred years *does she provide to him*. With signal deference is he revered *who does her honour*.

14. Debt, penury, sin, hunger, sudden death, fear, sorrow, disquietude of mind: for my behoof may they be done away with for ever.

*Saugor, May 11th, 1858.*

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\* It has already been remarked that Kardawa and Chiklíta are called sons of S'rí. A'nanda and S'rída here swell her progeny. S'rída, if identical with Kubera, has a different maternal descent assigned to him in the Pauránika theogonies. A'nanda, so far as I am aware, is altogether a stranger, except to the Jainas.

*On the Introduction of Writing into India.—By Professor*MAX. MULLER, *All Souls, Oxford.\**

Was the collection of the ten books of Vedic hymns the work of persons cognisant of the art of writing or not? Were the 1017 hymns of the Rig-veda, after they had been gathered into one body, preserved by memory or on paper? This is a question which, if it cannot be fully answered, requires at least to be carefully discussed.

We can hardly expect to find an answer to this question in the hymns themselves. Most persons acquainted with the history of popular poetry among the principal nations of antiquity would be ready to admit that the original composition and preservation of truly national poetry were everywhere due to the unaided efforts of memory. Nor is there one single allusion in these hymns to anything connected with writing. Where writing is known, it is almost impossible to compose a thousand hymns without bringing in some such words as, writing, reading, paper, or pen.

Let us consider the Old Testament.

The Ten Commandments were not only proclaimed by the voice of God, but Moses “went down from the mount, and the two tables of the testimony were in his hand: the tables were written on both their sides; on the one side and on the other were they written. And the tables were the work of God, and the writing was the writing of God, graven upon the tables.” (Exodus xxxii. 15, 16.) Here we can have no doubt that the author of the Book of Exodus, and the people to whom it was addressed, were acquainted with the art of writing. Again we read (Exodus xxiv. 7), that “Moses took the book of the covenant, and read in the audience of the people;” and (Exodus xxv. 16.), the Lord commanded Moses, saying, “Thou shalt put into the ark the testi-

[\* This paper is an extract from a work now in the press on the history of ancient Sanskrit literature. Professor Müller has sent it for the Society’s Journal in the hope of eliciting some fresh information from European or native scholars in India on the interesting questions which it discusses.—EDS.]



mony which I shall give thee." The covenant here spoken of must have existed as a book, or, at least, in some tangible form.

A nation so early acquainted with letters and books as the Jews, would naturally employ some of the terms connected with writing in a metaphorical sense. Thus we read in the Psalms (lvi. 8.) "Put thou my tears into thy bottle: are they not in thy book?"

lxix. 28. "Let them be blotted out of the book of the living, and not be written with the righteous."

xl. 7. "Then said I, Lo I come: in the volume of the book it is written of me."

xliv. 1. "My tongue is the pen of a ready writer."

In the Book of Job (xix. 23), we actually read, "Oh that my words were now written! oh that they were printed in a book! That they were graven with an iron pen and lead in the rock for ever!" "Printed" here can only mean "written."

Proverbs iii. 3. "Write them upon the table of thine heart."

In the Homeric poems, on the contrary, where the whole Grecian life lies before us in marvellous completeness and distinctness, there is not a single mention of writing. The *λυγρὰ σιμυεῖα*, carried by Bellerophon instead of a letter, are the best proof that, even for such purposes, not to speak of literary compositions, the use of letters was unknown to the Homeric age. The art of writing, when it is not only applied to short inscriptions but to literature, forms such a complete revolution in the history of a nation, and in all the relations of society, both civil and political, that, in any class of ancient literature, the total absence of any allusion to writing may safely be supposed to prove the absence of the art at the time when that literature arose. We know the complete regeneration of modern Europe which was wrought by the invention of printing. Every page of the literature of the sixteenth century, every pamphlet or fly-sheet of the Reformation, tells us that printing had been invented. The discovery of writing, and more especially the application of writing to literary purposes, was a discovery infinitely more important than that of printing. And yet we are asked to believe that Homer should have hidden his light under a bushel, and erased every expression connected with writing from his dictionary!

But though it is certain that the Homeric poets did not write, or, if we are to adopt the legendary language of certain critics, though it is certain that blind Homer did not keep a private secretary, there is no doubt that, at the time of Pisistratus, when the final collection of the Homeric poems took place, that collection was a collection of written poems. Pisistratus possessed a large library, and, though books were not so common in his time as they were at the time of Alcibiades, when every schoolmaster had his *Iliad*, yet, ever since the importation of paper into Greece, writing was a common acquirement of the educated classes of Greeks. The whole civilisation of Greece, and the rapid growth of Greek literature, has been ascribed to the free trade between Egypt and Greece, beginning with the Saidic dynasty. Greece imported all its paper from Egypt; and without paper no Greek literature would have been possible. The skins of animals were too rare, and their preparation too expensive, to allow the growth of a popular literature. Herodotus mentions it as a peculiarity of the barbarians, that at his time some of them still wrote on skins only. Paper (papyrus or byblus) was evidently to Greece what linen paper was to Europe in the middle ages.\*

Now, if we look for any similar traces in the history of Indian literature, our search is completely disappointed. There is no mention of writing materials, whether paper, bark, or skins, at the time when the Indian Diaskeuasts collected the songs of their Rishis; nor is there any allusion to writing during the whole of the Brâhmana period. This upsets the common theories about the origin of prose literature. According to Wolf,† prose composition is a safe sign of a written literature. It is not so in India. The whole of the Brâhmaṇa literature, however incredible it may seem, shows not a single vestige of the art of writing. Nay, more than this, even during the Sûtra period, all the evidence that we can get would lead us to suppose that even then, though the art of writing began to

\* Plin. Hist. Nat. xiii. 13. § 27.: "Cum chartæ usu maxime humanitas vitæ constat et memoria."

† Wolf, *Prolegomena*, lxx—lxxiii.: "Scripturam tentare et communi usui aptare plane idem videtur fuisse atque prosam tentare et in eâ excolendâ se ponere."



be known, the whole literature of India was preserved by oral tradition only.

It is of little avail in researches of this kind to say that such a thing is impossible. We can form no opinion of the powers of memory in a state of society so different from ours as the Indian Parishads are from our universities. Feats of memory, such as we hear of now and then, show that our notions of the limits of that faculty are quite arbitrary. Our own memory has been systematically undermined for many generations. To speak of nothing else, one sheet of the "Times" newspaper every morning is quite sufficient to distract and unsettle the healthiest memory. The remnants of our own debilitated memory cannot furnish us with the right measure of the primitive powers of that faculty. Even at the present day, when MSS. are neither scarce nor expensive, the young Brahmans who learn the songs of the Veda and the Brâhmanas, and the Sûtras, invariably learn them from oral tradition, and know them by heart. They spend year after year under the guidance of their teacher, learning a little day after day, repeating what they have learnt as part of their daily devotion, until at last they have mastered their subject, and are able to become teachers in turn. The ambition to master more than subject is hardly known in India. This system of education has been going on ever since the Brâhmana period, and as early as the Prâtisâkhyas we find the most minute rules on the mnemonic system to be followed by every teacher. The only difference in modern times, after the invention of writing, is that a Brahman is not only commanded to pass his apprenticeship at the house of his Guru, and to learn from his mouth all that a Brahman is bound to know, but the fiercest imprecations are uttered against all who would presume to acquire their knowledge from written sources. In the Mahâbhârata we read, "Those who sell the Vedas, and even those who write them, those also who defile them, they shall go to hell."\* Kumârila says "That knowledge of the truth is worthless which has been acquired from the Veda, if the

\* वेदविक्रयिनश्चैव वेदानां चैव लेखकाः ।

वेदानां दूषकाश्चैव ते वै निरयमाग्निनः ॥

Veda has not been rightly comprehended, if it has been learnt from writing, or been received from a Sudra.”\*

How then was the Veda learnt? It was learnt by every Brahman during twelve years of his studentship or Brahmacharyâ. This, according to Gautama, was the shortest period, sanctioned only for men who wanted to get married, and to become Grihasthas. Brahmans who did not wish to marry were allowed to spend forty-eight years as students. The Prâtisâkhyâ gives us a glimpse into the lecture-rooms of the Brahmanic colleges. “The Guru,” it is said,† “who has himself formerly been a student, should make his pupils read. He himself takes his seat either to the east, or the north, or the north-east. If he has no more than one or two pupils, they sit at his right hand. If he has more, they place themselves according as there is room. They then embrace their master, and say, ‘Sir, read!’ The master gravely says ‘Om,’ i. e. ‘Yes.’ He then begins to say a pras’na (a question), which consists of three verses.‡ In order that no word may escape the attention of his pupils, he pronounces all with the high accent,§ and repeats certain words twice, or he says ‘so’ (iti) after these words.”

\* Kumârla, Tantra-Vârttika, i. 3. p. 86.

यथैवान्याथविज्ञाताद्देदाक्षेप्यादिपूर्वकात् ।

शूद्रेणाधिगताद्वापि धर्मज्ञानं न सम्पन्नं ॥

† Prâtisâkhyâ du Rig veda, par A. Regnier, Journal Asiatique, 1856. Chapitre XV.

‡ If the metre is pankti, the pras’na may consist of two or three verses; if the metre is longer than pankti, two verses only constitute a pras’na; if a hymn consists of one verse, that by itself forms a pras’na. Samayas, i. e. passages which have occurred before (and are sometimes left out in the MSS), are counted, if they consist of a complete verse. Two Dvipadâs are counted as one verse, and, as the Commentator adds (v. 12.), the two half-verses of each Dvipadâ-line are to be joined in recitation, and only if there is one odd Dvipadâ-line remaining, a pause is to be made at the end of the first half-verse. If there are some verses remaining at the end of a hymn, they may be joined to the last pras’na; if there are more than two verses, this is optional.

§ The only words which, in the Sanhitâ-pâṭha, would be likely to escape the pupil’s attention are monosyllables consisting of one vowel only, and that a vowel not changed into a semi-vowel, in which form it would be more audible. This would restrict the rule regarding repetition to the two words *â* and *u*. Thus for *prâ*, which is *pra* + *â*, the Guru would have to say *prâ â* or *prâ â iti*. Instead

The chief difficulties in the pronunciation of the Veda are the changes of the final and initial letters.\* The pupils are instructed in these euphonic rules independently (the *S'ikshâ*), but whenever a difficult case of sandhi occurs, the Guru examines his audience and explains the difficulties. And here the method followed is this. After the Guru has pronounced a group of words, consisting of three or sometimes (in long compounds) of more words, the first pupil repeats the first word, and when anything is to be explained, the teacher stops him, and says, "Sir."† After it has been explained by the pupil who is at the head of the class, the permission to continue is given with the words, "Well, Sir." After the words of the teacher have thus been repeated by one, the next pupil has to apply to him with the word, "Sir."‡ When there is no difficulty the rule seems to be that the Guru says two words at a time, which are then repeated by the pupil. If it is a compound, one word only is to be pronounced by the Guru, and to be repeated by the pupil. After a section of three verses has thus been got through, all the pupils have to rehearse it again and again. When they have mastered it, they have to recite the whole without any break, with an even voice, observing all the rules of sandhi, marking slightly the division in the middle of compounds, and pronouncing every syllable with

of *ud u shya deva, ud u u shya deva*. This repetition would not take place in *udv eti*, because *u* is changed into *v*. If *sarvodâta* could mean a word being wholly *udâta*, then *u* would be excluded, and the rule would refer to *â* only. But *sarvodâta* means recitation when the accent is disregarded, and all syllables are pronounced with a high tone. The Commentary construes the rule differently. I construe इह प्रवचने सर्वोदात्तत्वं । तस्मिन् सर्वोदात्तप्रयुक्त प्रवचनेऽप्युक्तं तच्चाद्यैः प्रयुक्तं द्विः प्रोक्तत्वं अथवेतिकरणान्नं ।

\* These are chiefly the change of a final *m* into *Anusvâra* before *r* and the *ûshmans*; the common sandhi of the *ûshmans*; the suppression of a final *n*; its transition into *r*; its transition into a sibilant; the absence of sandhi where *ri* follows; the sandhi of *r*, and the hiatus.

† The text is निर्वाचे तु &c.

‡ Here again I differ from the Commentator, who takes *parasya* as an adjective referring to *etad*, i. e. *guroḥ*. At the end of a half-verse, this address, *bho* ! is to be dropped; at the end of an *Adhyâya* it is optional.

the high accent.\* It does not seem as if several pupils were allowed to recite together, for it is stated distinctly that the Guru first tells the verses to his pupil on the right, and that every pupil after his task is finished, turns to the right, and walks round the tutor. This must occupy a long time every day, considering that a lecture consists of sixty and more *pras'nas*, or of about 180 verses. The pupils are not dismissed till the lecture is finished. At the end of the lecture, the tutor, after the last half-verse is finished, says, "Sir," the pupil replies, "Yes, Sir." He then repeats the proper verses and formulas, which have to be repeated at the end of every reading, embraces his tutor, and is allowed to withdraw.

These rules speak for themselves. They show that at the time when such rules were necessary, and when young Brahmins had to spend from twelve to forty-eight years of their life† in doing nothing but learning and rehearsing the Veda, such a system must have had an object worthy of such efforts. Such an object existed, if, in the absence of writing, the sacred songs, which were believed to be the only means to salvation were to be preserved and guarded against loss and corruption. If, at the time of the *Prâtis'ākhyas*, writing had been known, some mention of a book as a sacred object would surely have occurred somewhere. We know from the *Grihyasûtras* every event in the life of a Brahmin, from his birth to his death. Not a word is ever said about his learning to write.

The earliest allusion to this system of oral teaching occurs in a hymn of the *Rig-veda* which must be ascribed to the Mantra period. In the primitive poetry of the *Chhandas* period there is no mention either of writing or teaching. But in a satirical hymn of the *Vâsishthas* (vii. 103. 5.), in which the frogs are

\* According to some *S'âkhâs*, not the *S'âkhalas*, certain words (prepositions) are, in this final recitation also, to be followed by the particle *iti*; *abhi* is even, in some cases, to be pronounced *abhityabhi*. Some other rules are given, all of which are optional. The text of the Veda, as repeated in the lecture room, is neither *Sanhitâ*, *Pada*, nor *Krama*-text. Some few *Sâkhâs* only maintain that the *Sanhitâ* text should be used *pure et simple*.

† Cæsar (*de Bello Gallico*, vi. 14.), speaking of the Druids, says: "Magnum ibi numerum versuum ediscere dicuntur, itaque nonnulli annos vicenos in disciplina permanent, neque fas esse existimant ea literis mandare."

compared with Brahmaus, teaching their pupils, it is said : “ One frog repeats the words of another, like a pupil who repeats the words of his teacher.” No similar allusion to writing is to be found even in the latest hymns, the so-called Khilas. If writing had been known during the Brâhmana period, is it likely that these works, which are full of all kinds of mystic lucubrations on the origin of all things, should never with a single word have alluded to the art of writing, an art so wonderful that the Greeks would fain ascribe its discovery to one of the wisest gods of the wisest nation on earth ? If letters had been known during the period when men in India were still able to create gods, the god of letters would have found his place in the Vedic pantheon side by side with Sarasvatî, the goddess of speech, and Pûshan, the god of agriculture. No such god is to be found in India, or in any of the genuine mythologies of the Aryan world.

But there are stronger arguments than these to prove that, before the time of Pânini, and before the first spreading of Buddhism in India, writing for literary purposes was absolutely unknown.

If writing had been known to Pânini, some of his grammatical terms would surely point to the graphical appearance of words. I maintain that there is not a single word in Pânini's terminology which presupposes the existence of writing. The general name for letters is *varṇa*. This does not mean colour in the sense of a painted letter, but the colouring or modulation of the voice.\* *Akshara*, which is used for letter and syllable, means what is indestructible, radical, or an element. We speak of stops as signs of interpunction ; Pânini only speaks of *virāmas*, stoppages of the voice. The names of the letters are not derived from their shape, as in the Semitic names of Alpha, Beta, Gamma. With the exception of the *r* their names are their sounds. The name for *r*, *Repha*, does not occur in Pânini. Kâtyâyana, however (iii. 3, 108, 4.), explains the derivation of *Repha*, and in iv. 4, 128, 2, he uses it for *ra*. In the Prâtisâkhyas likewise, the word is well known, and as the participle *riphita* is used in the same works, there can be little doubt that *Repha* is derived from a root *riph*, to snarl or hiss.

\* Aristotle, Probl. x. 39. τὰ δὲ γράμματα πάθη ἐστὶ τῆς φωνῆς.



The terms for the three accents show no traces of writing, such as the Latin word "circumflexus."

What would have been more natural, if writing had been known in Pāṇini's time, than that he should have called the dot of the Anusvāra, *vinḍu*, i. e. dot, and the Visarga, *dvivinḍu*, the double dot? Let us take a later grammarian, Vopadeva, and we find such words at once. In Vopadeva, the Anusvāra is called *vinḍu*, the Visarga, *dvivinḍu*. What the Prātisākhya and Pāṇini called the *Jihvāmūliya*, the sibilant formed near the base of the tongue, and *Upadhmāniya*, the labial flatus, Vopadeva calls *Vajrākṛiti*, having the shape of the thunderbolt (×), and *Gajakumbhākṛiti*, having the shape of an elephant's two frontal bones (𑖦). The term *arddhachandra*, or half-moon, belongs to the same class of grammatical terms. Why should these words occur in later grammarians, and not one of them be found in the Prātisākhya or Pāṇini?

Another class of words which would be sure to betray the existence of writing where writing was known, are the words expressive of reading, composing, book, chapter, paragraph, &c. The most usual word for reading in Sanskrit is *adhyeti* or *adhīte* and at first sight the very existence of such a word might seem to prove the existence of books that could be read. But we have seen in the Prātisākhya what was meant when the pupils asked their tutor to make them read. *Adhyeti* and *adhīte* from *adhi*, over, and *i*, to go, mean "he goes over a thing, he conquers it, acquires it;" and the very expression "to read a work from the mouth of the tutor," would be sufficient to show that the work existed, not as a book, but in men's memory. Another expression of the same kind is found in Manu (x. 1.): "All the three castes may read the Veda, but the Brahman alone is allowed to proclaim i. e. to teach it (*prabrūyat*)."  
To teach is expressed by the causative of the verb *adhyeti*, *adhyāpayati*, he makes read, i. e. he teaches. The ancient Hindus distinguish between two kinds of reading, the *grahāṇādhyayana*, the acquisitive reading, and the *dhāraṇādhyayana*, the conservative reading; the former being the first acquisition of a work, the latter its rehearsing in order not to lose a volume that once belonged to one's mental library. This rehearsing, or *svādhyāya*, self-reading,

was as sacred a duty as the first acquisition. It was by means of this svâdhyâya alone that works could be said to live. We meet with similar expressions in other literatures of the ancient world. Ahuramâsdâ, when he wishes his law to live among men, requires Jima to be not only the “rememberer” (meretâ), but the bearer and preserver (bheretâ), of the Zarathustrian revelation. And many centuries later, Mahâvîra,\* the founder of the Jaina religion, is called *sâraē*, *vâraē*, and *dhâraē* of sacred knowledge, i. e. *smâraka*, a rememberer, *vâraka*, a guardian who keeps it from profane eyes, and *dhâraka*, a holder who does not forget the knowledge which he once acquired.

Even so late a writer as Kumârila, when he speaks of the material existence of the Veda, can only conceive of it as existing in the minds of men. “The Veda,” he says, “is distinctly to be perceived by means of the senses.† It exists, like a pot or any other object, in man. Perceiving it in another man, people learn it and remember it. Then others again perceiving it, as it is remembered by these, learn it and remember it, and thus hand it on to others. Therefore, the theologian concludes, the Veda is without a beginning.” These theological arguments may be passed over: but immediately afterwards, in order to show that the Veda has a material existence, Kumârila uses another curious expression, which shows again that to him the Veda existed only in the memory of men. “Before we hear the word Veda,” he says, “we perceive, as different from all other objects, and as different from other Vedas, something in the form of the Rig-veda that exists within the readers, and things in the form of Mautras and Brâhmanas, different from others.” Such

\* Kalpa Sutra, ed. Stevenson, p. 29.

† वेदः पुनः सविशेष प्रत्यक्षगम्यः । तत्र घटादिवदेव पुरुषान्तरस्थ-  
मुपलभ्य स्मरन्ति । तैरपि स्मृतमुपलभ्यान्वेऽपि स्मरन्तो ऽन्येभ्यस्तथैव  
समर्थयन्तीत्यनादिता ॥ सर्वस्य चात्मीयस्मरणात्पूर्वमुपलब्धिः सम्भव-  
तीति निर्मूलता ॥ शब्दसम्बन्धव्युत्पत्तिमात्रमेव चेह वृद्धयवहारा-  
धीनं ॥ प्रागपि हि वेदशब्दादन्यवस्तुविलक्षणं वेदान्तरविलक्षणं  
चाध्येतस्य ऋग्वेदादिरूपं मन्त्रब्राह्मणादिरूपाणि चान्यविलक्षणान्युप-  
लभ्यन्ते सर्वेषां चानादयः संज्ञाः ॥

arguments would not occur to people who were accustomed from time immemorial to appeal to a book as the sacred authority of their faith. When contemporaneously with our Reformation, Nanak founded the religion of the Sikhs, we find in India, as well as elsewhere, that a book, a real book, was considered as the firmest foundation of a new faith. "At their assemblies, when the chiefs and principal leaders are seated, the *Ādi-Granth* (the first book) and *Das'ama Pādshāhka Granth* are placed before them; they all bend their heads before these scriptures, and exclaim, *Wa! Gurujika Khālsa! Wa! Gurujiki Fateh!* A great quantity of cakes, made of wheat, butter, and sugar, are then placed before the volumes of their sacred writings, and covered with a cloth. These holy cakes, which are in commemoration of the injunction of Nanak, to eat and to give to others to eat, next receive the salutation of the assembly, who then rise, and the *Acalis* pray aloud, while the musicians play. The *Acalis*, when the prayers are finished, desire the council to be seated. They sit down, and the cakes being uncovered are eaten of by all classes of Sikhs; those distinctions of original tribes, which are on other occasions kept up, being on this occasion laid aside, in token of their general and complete union in one cause. The *Acalis* then exclaim, "*Sirdars! (chiefs) this is a Gurumatâ*" (a great assembly); on which, prayers are again said aloud. The chiefs, after this, sit closer, and say to each other: "The sacred *Granth* (book) is betwixt us, let us swear by our scriptures to forget all external disputes, and to be united."\*

Such a scene would be impossible among pure Brahmins. They never speak of their *granthas* or books. They speak of their *Veda*, which means "knowledge." They speak of their *S'ruti*, which means what they have heard with their ears. They speak of *Smṛiti*, which means what their fathers have declared unto them. We meet with *Brāhmanas*, i. e. the sayings of Brahmins; with *Sūtras*, i. e. the strings of rules; with *Vedāngas*, i. e. the members of the *Veda*; with *Pravachanas*, i. e. preachings; with *S'āstras*, i. e. teachings; with *Dars'anas*, i. e. demonstrations; but we never meet with a book, or a volume, or a page.

If we take the ordinary modern words for book, paper, ink,

\* Asiatic Researches, xi. 255.



writing, &c., not one of them has as yet been discovered in any Sanskrit work of genuine antiquity. Book, in modern Sanskrit, is *pustam* or *pustakam*, a word most likely of foreign origin.\* It occurs in such works as the *Hitopade'sa*, where we read of a person, "neither read in books nor taught by a tutor." The *Hitopades'a* itself is said to be written (*likhyate*) as an extract from the *Panchatantra* and another book.†

To write is *likh* and *lip*, the former originally used in the sense of scratching, whether on stone or leaves, the latter, in the sense of covering a surface with ink. Thus in *S'akuntala*, the chief heroine, when advised to write a love-letter (*madanalekha*), complains that she has no writing-materials (*lekhanasūddhanāni*), and her friend tells her to take a lotus-leaf as smooth as the breast of a parrot, and with her nails to scratch the letters on it. This is clearly writing. In the *Vikramorvasī* again, *Urvasī* not daring to face her lover, writes a letter (*lekha*) on a birch-leaf (*bhūrjaputra*). The king, who sees it, calls it *bhūrjagato aksharavinyāsa*, "letters put down on a birch-leaf;" and when he reads it, he is said to make the leaf speak (*vāchayati*). The leaf (*putra*) is used here not in the sense in which we found it in *S'akuntala*, as the leaf of a tree, but as a leaf or sheet of paper. This paper was made of the bark of the birch-tree; and hence, when the queen picks up the love-letter, she thinks "it is a strip of fresh bark which the south wind has blown thither."‡

Passages like these, to which we might add the well known introduction of the *Mahābhārata*, leave little doubt that, at the time when these modern plays were composed, writing was generally practised by women as well as men. Why should there be no such passage in any of the genuine early Sanskrit works, if writing had then been equally known?

\* Could it be *apetak*, originally the Sanskrit *avasthāna*? See Spiegel, *Grammar of the Parsi Language*, p. 204.

† पञ्चतन्त्रात्तथान्यस्माद्यस्यादाव्यस्य लिख्यते ॥

‡ There are, I believe, but two Sanskrit MSS. in Europe which are written on birch bark, one in the Royal Library of Berlin, the other in the Library of All Souls College, Oxford.

In Manu's Code of Laws we read (viii. 168): "What is given by force, what is by force enjoyed, by force caused *to be written* (*lekhitā*), and all other things done by force, Manu has pronounced void." Here again we have clearly writing. But this is only another proof that this metrical paraphrase of the laws of the Mānavas is later than the Vedic age.

In the Laws of Yājñavalkya also written documents are mentioned, and the Commentator (ii. 22) quotes Nārada and other authorities, all in Slokas, on several minor points connected with the signing (*chiknita*) of papers, and the treatment of witnesses who cannot write (*alipijña*). But I have found no such traces of written documents in any of the ancient Dharmasūtras.

The words for ink (*masi*,\* *kālī*, *mela*, *gola*) and pen (*kalama*), have† all a modern appearance, and as to *Kāyastha*, the name of writer caste, proceeding from a Kshatriya father and a Sudra mother, it does not even occur in Manu.

Another class of words which would be likely to contain allusions to writing are those used for the various subdivisions of literary compositions; but these too point to a literature kept up by oral tradition only. We observed before that a lecture (*adhyāya*) consisted of sixty questions or *praś'nas*. We find these very words used instead of chapters and paragraphs in the Sanhitās, Brāhmanas, and Sūtras. In the Rīg-veda we have the ancient division in *sūktas*, hymns; *anuvākas*, chapters (*i. e.* repetitions); and *mandalas*, books (*i. e.* cycles): and the later division in *vargas*, classes; *adhyāyas*, lectures; and *Ashtakas*, Ogdoads. In the Taittirīyaka, the division is into *Kaṇḍikās* (sections), *anuvākas*, *praś'nas*, and *ashtakas*. In the Kāthaka we have *granthas*, compositions, and *sthānakas*, loci. The name of the *Satapathabhrāmana* is derived from its 100 *pathas* or walks; and *Shashtīpatha* is used for a work consisting of sixty walks or chapters. Other words of the same kind are *prapāṭhaka*, a reading, a lecture; *āhnikā*, a day's work; *parva*, a joint, &c. We look in vain for such words as *volumen*, a volume, *liber*, *i. e.* the inner bark of a tree; or βίβλος, *i. e.* βύβλος, the inner bark of the papyrus; or *book*, *i. e.* beech-wood.

\* Lalita Vistara, adhyaya, ix. p. 139, l. 17.

† Unādi-sutras, iv. 84. calamus, reed.

It is clear from the evidence which we have examined, that it is far easier to prove the absence of writing during the early period of Sanskrit literature, than to discover any traces of writing even at the time when we are inclined to suppose that it was known in India. Writing was practised in India before the time of Alexander's conquest, and, though it may not have been used for literary purposes, we can hardly doubt that a written alphabet was known during the greater part of the Sûtra-period. The Greek writers tell us exactly what we should expect under these circumstances. Megasthenes declared that the Indians did not know letters, that their laws were not written, and that they administered justice from memory.\* This is perfectly true, if, as has been pointed out,† we restrict their ignorance of letters to the fact that they did not employ them for literary purposes. Strabo himself, when quoting the statement of Nearchus that the Indians wrote letters on cotton that had been well beaten together, points out the contradiction between this author and others (*i. e.* Megasthenes), who declared that the Indians used no letters at all.‡ There is, however, no real contradiction between these two statements, if we only distinguish between the knowledge of letters and their use as a vehicle of literature. Nearchus fully agrees with Megasthenes; for he also states that the laws of the Indians were not reduced to writing.§ And Megasthenes agrees with Nearchus; for he also shows himself perfectly acquainted with the fact that the Indians used letters for inscriptions on milestones, indicating the resting-places and distances.|| Nothing could offer a stronger confirmation of our opinion that the Indians had become acquainted with the art of writing during the Sûtra-period and before the conquest of Alex-

\* Strabo, xv. 53.: . . . . 'Αγράφους καὶ ταῦτα νόμοις χρωμένους. Οὐδὲ γὰρ γράμματα εἰδέναι αὐτοὺς, ἀλλ' ἀπὸ μνήμης ἕκαστα διοικεῖσθαι.

† Schwanbeck, Megasthenis Fragmenta, p. 50.

‡ Strabo, xv. 67.: 'Επιστολὰς δὲ γράφειν ἐν σιδόσι λίαν κέκροτημέναις, τῶν ἄλλων γράμμασιν αὐτοὺς μὴ χρῆσθαι φαμένων.

§ Strabo, xv. 66.: Νέαρχος δὲ περὶ τῶν σοφιστῶν οὕτω λέγει· τοὺς μὲν νόμους ἀγράφους εἶναι.

|| Οἱ ἀγορανόμοι . . . ὁδοποιούσι, καὶ κατὰ δέκα στάδια στήλην τιθέασιν τὰς ἐκτροπὰς καὶ τὰ διαστήματα δηλούσας.

ander, but that they abstained from using it for literary purposes, than this apparent contradiction in the accounts of Nearchus and Megasthenes. Curtius, differing from Nearchus, maintains that they wrote on the soft rind of trees,\* a custom which we saw preserved in the play of Urva'sî. We could hardly believe that the Indians should have used skins for writing. And though Nicolaus Damascenus declares that he saw the ambassadors of Porus to Cæsar Augustus in Antiochia, and that they brought a letter written ἐν διφθέρα, we must remember that that letter was written in Greek,† and that the word διφθέρα might have been used for paper in general ‡

We shall not be able to trace the Indian alphabet back much beyond Alexander's invasion. It existed, however, before Alexander. This we know from Nearchus himself, who ascribes to the Indians the art of making paper from cotton. Now, in looking for traces of writing before Alexander's time, we find in the Lalita-vistara, which contains the life of Buddha, that the young S'ākya is represented as learning to write. Though the Lalita-vistara cannot be regarded as a contemporaneous witness, it is nevertheless a canonical book of the Buddhists, and as such must be ascribed to the third council. It was translated into Chinese 76 A. D. As we have seen before the system of instruction practised in the lecture-rooms of the Brahmans, it will perhaps be of interest to glance at the schools in which Buddha was educated, or supposed to have been educated.

“When the young prince had grown, he was led to the writing-school (lipi's'âlâ).§” We may leave out all the wonderful things that happened on this occasion, how he received a hundred thousand blessings, how he was surrounded by ten thousand children, preceded by ten thousand chariots full of sweetmeats, of silver and gold; how the town of Kapilavastu was cleansed, how music sounded everywhere, and showers of flowers were thrown from the roofs,

\* Curtius, 8, 9. “Libri arborum teneri, laud secus quam chartæ, literarum notas capiunt.”

† Strabo, xv. 73. Τὴν δὲ ἐπιστολὴν ἑλληνίζειν ἐν διφθέρα γεγραμμένην.

‡ Herodotus, v. 58.

§ Lalita-Vistara, Adhyāya, x.

windows, and balconies ; how not satisfied with this, celestial ladies walked before him to clear the road, and the daughters of the wind scattered celestial flowers, besides other fabulous beings who all came to honour the Bodhisatva as he went to school. These marginal illustrations may be dropped in all Buddhist books, though they leave but little room for the text. When Buddha entered the school, Vis'vâmitra, the schoolmaster (Dârakâchârya), unable to bear the majesty of Bodhisatva's presence, fell to the ground, and had to be lifted up by an angel, named S'ubhânga. After the king S'uddhodana and his suite had left, the nurses and attendants sat down, and Bodhisatva took a leaf to write on (lipiphalaka) made of sandal-wood (uragasârachandana-mayam). He then asked Vis'vâmitra what writing he was going to teach him. Here follow sixty-four names, apparently names of alphabets,\* all of which Bodhisatva is acquainted with, whereas Vis'vâmitra is obliged to confess his ignorance. Nevertheless Bodhisatva stays at school, and learns to write together with ten thousand boys.

The alphabet which he learns is the common Sanskrit alphabet, with the omission of the letters l, ñ and ř. It consists of 45 letters, and, as in our own primers, every letter is followed by a word containing that letter at the beginning or in the middle. These words in the Lalita-vistara are so chosen as to illustrate some of the chief points of Buddha's own doctrines. The alphabet is:—a, â, i, î, u, û, e, ai, o, au, am, ah ; k, kh, g, gh, ñ ; ch, chh, j, jh, n ; t, th, d, dh, n ; t, th, d, dh, n ; p, ph, b, bh, m ; y, r, v ; s', sh, s, h, ksh.

Though the further education of Buddha is not fully described, we see him soon afterwards in general competition, the most distinguished scholar, arithmetician, musician and everything else.† This comprehensive system of education, through which Buddha is here represented to have passed, is the very opposite of that followed by

\* The most interesting names are Anga (Bhagalpur), Banga (Bengal), Magadha, Drâviḍa, Dakshina (Dekhan), Darada, Khâsya (Cassia hills), Chîna (Chinese), Hûna, Deva (Devarâgari), Bhaumadeva (Brahman), Uttarakurus, anudruta (cursive).

† Among the subjects in which he shows his learning, figure Nirghaṇṭu, Nigama, Purâna, Itihâsa, Veda, Vyākaraṇa, Nirukta, Sikshâ, Chhandas, Kalpa, Tyotisha, Sâṅkhya, Yoga, Vais'eshika.



the Brahmaus. We nowhere meet in the Buddhist literature with those strong imprecations against book-learning which we found among the Brahmans, and which may be heard, I believe, even at the present day.

If thus the first, though rather legendary, trace of writing, as a part of the elementary education in India, is\* discovered in the life of Buddha, it is curious to observe that the first actual writing, the first well authenticated inscription in India, is likewise of Buddhist origin. There are no Brahmanic inscriptions earlier than the Buddhist inscriptions of As'oka on the rocks of Kapurdigiri, Dhauli, and Giruar. They belong to the third century before Christ. They call themselves *lipi*, a writing,† or *dharmalipi*,‡ a sacred writing; and they mention the writer or engraver by the name of *lipikara*.§ This last word *lipikara* is an important word, for it is the only word in the Sûtras of Pânini which can be legitimately adduced to prove that Pânini was acquainted with the art of writing. He teaches the formation of this word, iii. 2, 21. There is indeed another passage, which has frequently been quoted, where Pânini teaches the formation of the adjective *yavanânî*. This is simply the feminine of *yavana*, as *Indrânî* is of *Indra*. Kât'yâyana, however, and the Commentator, both maintain that *yavanânî* is used as a name of lipi, and that it meant the writing of the Yavanas. I see no reason to doubt that the examples which we find in the Commentaries go back to the very time of Pânini, and I am quite willing to admit that Pânini gave his rule on *yavanânî* simply in order to explain *Yavanânî*, as the name of a certain alphabet. But I must demur to any further conclusions. *Yavana* is by no means the exclusive name of the Greeks or Ionians. Professor Lassen has proved that it had a much wider meaning, and that it was even

\* In an ancient inscription of Khandgiri (Journal of the Asiat. Soc. of Bengal, vi. 318), a king is mentioned who in his youth learned to write, and was taught besides, arithmetic, navigation, commerce, and law ("tato likharûpagaṇa nâva vapâra vidhi vi'sâradena.")

† Etâya athâya iyaṃ lipi likhitâ; for this purpose was the writing written.

‡ Iyaṃ dhammalipi Devânam piyena piyadasinâ rânâ likhâpitâ asti eva, p. 752.

§ Burnouf, Lotus, p. 752.

used of Semitic nations. There is nothing to prove that Pânini was later than Alexander, or that he was acquainted with Greek literature. In the *Lalita-vistara*, where all possible alphabets are mentioned, nothing is said of a *Yavanânî* or a Greek alphabet. The Sanskrit alphabet, though it has always been suspected to be derived from a Semitic source, has not certainly been traced back to a Greek source. It shows more similarity with the Aramæan than with any other variety of the Phœnician alphabet.\* *Yavanânî lipi* might mean that variety of the Semitic alphabet which, previous to Alexander, and previous to Pânini, became the type of the Indian alphabet. But all this is merely conjectural. It is impossible to arrive at any certain interpretation of *Yavanânî*, as used by Pânini; and it is much better to confess this, than to force the word into an argument for any preconceived notions as to the origin of the Indian alphabet.

There is another word in Pânini which might seem to prove that not only the art of writing, but written books were known at his time. This is *grantha*. *Grantha* occurs four times in our texts of Pânini.† In I. 3, 75, it is so used as to apply to the Veda. In IV. 3, 87, it may refer to any work. In IV. 3, 116, it is applied to the work of any individual author. In VI. 3, 79, it may refer to any work that is studied. I do not attribute much importance to the fact that I. 3, 75. and IV. 3, 116. are marked as not explained in the Commentaries; for I confess that in none of these four passages can I discover anything to prove that *grantha* must mean a written or a bound book. *Grantha* is derived from a root *grath*, which means *nectere*, *serere*. *Grantha*, therefore, like the later *sandarbha*, would simply mean a composition.‡ It corresponds

\* Lepsius, *Zwei sprachvergleichende Abhandlungen*, p. 78., Schulze's conjecture about *Mesud*. Weber, *Indische Skizzen*.

† 1. 3. 73—77 na. vy. :

समुदाङ्भ्यो यनो ऽग्रस्ये ॥ १. ३. ७५ ॥

अधिष्ठत्य द्धते ग्रस्ये ॥ ४. ३. ८७ ॥

द्धते ग्रस्ये ॥ ४. ३. ११६ ॥

ग्रस्यान्ताधिके च ॥ ६. ३. ७६ ॥

‡ Thus the Commentator to *Rig-veda*, 1, 67, 4, explains *chritanti* by *agnim uddis'ya stutir grathnanti, kurvantityarthah*.

etymologically with the Latin *textus*. Thus it is used by the Commentator to Nir. I. 20, where he says that former teachers handed down the hymns *granthato' rthatas'cha*, "according to their text and according to their meaning." In the later literature of India *grantha* was used for a volume, and in *granthakûti*, a library, we see clearly that it has that meaning. But in the early literature *grantha* does not mean *pustaka*, or a book; it means simply a composition, as opposed to a traditional work.

This distinction between traditional works, and works composed by individual authors, is of frequent occurrence in Pāṇini. From IV. 3, 101. to 111. he gives rules how to derive the titles of works from the names of those by whom they were proclaimed (*tena proktam*). But in most cases these derivations are used by Pāṇini as intermediate links only, in order to form the names of Charaṇas who read and preserve these works. Never, he says (IV. 2, 66.), use the derivation, which would be the title of a work, in the case of hymns (*chhandas*) or Brâhmanas. Do not call a work proclaimed by Kaṭha, Kaṭham, but only speak of Kaṭhas, *i. e.* those who hand down the works proclaimed by Kaṭha. Another still more significant restriction is made by Pāṇini. With reference to modern works, he says you may use the neuter in the singular or plural, instead of the plural of the masculine. The Brâhmapas taught by Yājñavalkya may be spoken of as such. But the ancient Brâhmanas first proclaimed by Bhallava, &c., can only be spoken of as "the Bhâllavins" (*Bhallaividæ*), because it is only in the tradition of his descendants that the works of Bhallava and other ancient sages may be said to live.

However we examine the ancient Sanskrit phraseology with regard to books and their authors, we invariably arrive at the same results. In the most ancient literature, the idea even of authorship is excluded. Works are spoken of as revealed to and communicated by certain sages, but not as composed by them. In the later literature of the Brâhmaṇa and Sûtra period the idea of authorship is admitted, but no trace is to be found anywhere of any books being committed to writing. It is possible I may have overlooked some words in the Brâhmanas and Sûtras, which would prove the existence of written books, previous to Pāṇini. If so, it is not from any wish to suppress them. I do believe that the Brâhmanas were



preserved by oral tradition only, but I should feel inclined to claim an acquaintance with the art of writing for the authors of the Sûtras. And there is one word which seems to strengthen such a supposition. We find that several of the Sûtras are divided into chapters called *paṭalas*. This is a word never used for the subdivisions of the Brâhmanas. Its meaning is a covering, the surrounding skin or membrane; it is also used for a tree. If so, it would seem to be almost synonymous with *liber* and βίβλος and it would mean a *book*, after meaning originally a sheet of paper made of the surrounding bark of trees. If writing came in towards the latter half of the Sûtra period, it would no doubt be applied at the same time to reducing the hymns and Brâhmanas to a written form. Previous to that time, however, we are bound to admit that the collection of the hymns, and the immense mass of the Brâhmaṇa literature, were preserved by means of oral tradition only.

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PROCEEDINGS  
OF THE  
ASIATIC SOCIETY OF BENGAL,  
FOR FEBRUARY, 1859.

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The Monthly General Meeting of the Asiatic Society was held on the 2nd instant.

The proceedings of the December and January meetings were read and confirmed.

Presentations were received.

1. From Lieut. E. H. Fergusson, Superintendent, Government Observatory, Bombay, a copy of the *Magnetical and Meteorological Observations* made at the Bombay Observatory in the year 1857.
2. From Captain Burbank, Steamer *Fire Queen*, an Andaman Canoe.
3. From Rt. Rev. P. Bigandet, Bishop and Vicar Apostolic of Ava and Pegu, a work on Buddhism in Burmah.
4. From Captain F. A. V. Thurburn, a small tin box containing 124 copper coins collected at Ajodheia, of which 5 or 6 may prove valuable, and which he begged to present to the Society.
5. From Dr. Macgowan of Ningpo corresponding member of the Society, some Chinese iron coins.
6. From Mr. Jennings of Messrs. Osler and Co. through Major Thuillier, a map of China and part of Hindostan, published in the 16th century. (Sent for exhibition.)
7. From His Highness the Maha Rajah of Burdwan, a ball found in the small intestines of a Giraffe which died suddenly.
8. From E. A. Samuells, Esq., Dinapore, two wooden cannons bound with iron, and a female figure in stone.
9. From M. Natalis Rondot of Paris, commercial delegate attached to the mission of M. de la Grene in China, two copies of his

new work entitled *Vert de Chine et de la Teinture en Vert Chez les Chinois*.

Maharajah Suttish Chunder Roy Bahadoor, and C. Alabaster, Esq., duly proposed at the December meeting, were balloted for and elected ordinary members, and Dr. Max Muller, likewise proposed at the December meeting, was balloted for and elected a corresponding member of the Society.

*Letters were read.*

From Captain F. A. V. Thurburn and B. J. Colvin, Esq., announcing their withdrawal from the Society, and from W. S. Seton Karr, Esq., stating that he had ceased to be a member of the Society at the close of 1853, before his departure for Europe (letter not received.)

The following gentlemen were proposed as members.

Major A. H. P. Stuart Wortley, M. P., proposed by A. Grote, Esquire, seconded by W. S. Atkinson, Esq.

H. Stainforth, Esquire, B. C. S., proposed by A. Grote, Esq., seconded by Col. R. Strachey.

Baboo Kassy Nauth Roy Chowdry, proposed by Baboo Rajendra Lal Mittra, and seconded by Baboo Ramapersaud Roy.

H. Scott Smith, Esq., Civil Engineering College, proposed by Dr. W. Crozier, and seconded by E. B. Cowell, Esq.

W. Theobald, Esq., junior, proposed by A. Grote, Esq. and seconded by W. S. Atkinson, Esq.

Lieut. W. G. Alexander of the 93rd Highlanders, proposed by Major H. L. Thuillier, and seconded by W. S. Atkinson, Esq.

Capt. F. W. Stubbs, Bengal Artillery, proposed (for re-election) by Major H. L. Thuillier, and seconded by W. S. Atkinson, Esq.

The Council reported that they had appointed the following Sub-Committees for the year 1859,

*Finance.*

Capt. C. H. Dickens.

Baboo Ramgopaul Ghose.

*Philology.*

E. A. Samuells, Esq.

Rev. J. Long.

F. E. Hall, Esq.

Dr. E. Roer.

Captain W. N. Lees.

Baboo Rajendralal Mittra.

*Library.*

E. A. Samuells, Esq.

Baboo Ramapersaud Roy.

Lieut. Col. R. Strachey.

Captain W. N. Lees.

Captain C. H. Dickens.

Baboo Rajendralal Mittra.

*Natural History.*

Dr. T. Boycott.

E. A. Samuells, Esq.

T. Oldham, Esq.

Dr. T. Thomson.

Dr. W. Crozier.

Lieut. Col. R. Strachey.

H. F. Blanford, Esq.

*Meteorology, and Physical Science.*

The Ven'ble J. H. Pratt.

Major H. L. Thuillier.

Lieut. Col. R. Strachey.

Baboo Radha Nauth Sikdar.

T. Oldham, Esq.

The Council presented a report recommending that the Hon'ble Sir James Colvile, Kt., be elected an Honorary member as a mark of respect for his long and zealous services as President of the Society.

*Communications received.*

1. From F. E. Hall, Esq., a paper on certain Sanscrit Inscriptions.

2. From Baboo Radhanauth Sickdar, an Abstract of the Meteorological Observations taken at the Surveyor General's office, during the months of August and September, 1858.

The Curator exhibited a skull with magnificent horns of the Wapite stag, of North America, or miscalled Elke of the Anglo Americans, from California; the specimen sent for the occasion by J. W. Linzee, Esq., of the firm of Dutts, Linzee and Co., American

merchants. The peculiar characteristics of the Wapite, as distinguished from the *Shou* of Thibet and other large stags, were explained, and some observations made on the geographical distribution of the particular group of Deer, in which the *Cervus elaphus* of the British Islands is included.

The Curator also exhibited the lower jaw and other bones of a Dugong, found in an Andamanese hut, and presented to the Society by Captain Niblett of the Steamer *Sydney*. Though inhabiting the Straits of Malacca, he was unaware of this marine animal having previously been met with in the Bay of Bengal. It is not rare, however, in the Gulf of Calpentyu, in Ceylon, and occurs also along the Malabar Coast, where it is miscalled 'Seal' by Europeans. The entire skeleton of an adult, it was remarked, would be a valuable acquisition for the Society's Museum.

Various other donations were announced, as especially some rare bird skins and skeletons from J. H. Gurney, Esq., M. P., of Norwich, and a variety of specimens from the Andamans and interior of the Tenasserim Provinces collected and presented by the Secretary.

Read a paper by Dr. Anderson on the flora of Lucknow and its neighbourhood.

The thanks of the meeting were voted to Dr. Anderson for his interesting communication.

#### *Reduction of Subscriptions.*

Mr. Oldham begged to state for the information of members that the Council had under discussion a proposal for the reduction of the contributions payable by members. He thought it desirable that this should be known as widely as possible.

The Officiating Librarian submitted his usual report for December and January last.

#### LIBRARY.

List of fresh accessions to the Library during December and January.

#### *Presentations.*

Letter to Sir David Brewster, F. R. S., &c on Results in Terrestrial Magnetism.—By JOHN ALLAN BROWN, F. R. S.

Annalen der Chemie und Pharmacie for August and September, 1858.

The Oriental Christian Spectator for November and December, 1858.—  
BY THE EDITOR.

The Oriental Baptist for December, 1858, and January, 1859.—BY THE  
EDITOR.

Comets and the Comet of 1858. A Lecture by J. Burgess, Esq.—BY  
THE AUTHOR.

The Calcutta Christian Observer for December, 1858, and January,  
1859.—BY THE EDITORS.

Ueber das Catrunjaya Mâhâtmyam, Ein Beitrag zur Geschichte der  
Jaina. Von Albrecht Weber, Leipzig.—BY THE AUTHOR.

Zur Litteratur und Geschichte des Weda, drei Abhandlungen von Rudolph Roth. Stuttgart, 1846.

Proceedings of the Royal Society of Edinburgh. Session 1857-58.

Indische Studien Band IV. parts 2 and 3.

Journal of the Indian Archipelago. Vol. 2. New Series, No. 4.

Selections from the Records of the Bombay Government. No. 47, Report on a Project for the supply of Water to the Poona Cantonment. With Plans and Sections in a separate case. No. 48, New Series. A short Review of Mr. Plowden's Report on the Salt Excise of the Bombay Presidency. By Nicholas A. Dalzell, Esq.—BY THE GOVERNMENT OF BOMBAY.

Selections from the Records of the Madras Government No. 50. Report on the Agricultural Exhibitions in the Provinces in the year 1857. Desiderata for the Madras Exhibition of 1859.—BY THE BENGAL GOVERNMENT.

Annals of the Indian Administration, Part IX. 1858. Edited by Meredith Townsend.—BY THE HOME GOVERNMENT.

Bibidhartha Sangraha for Bhadro, 1265.—BY THE EDITOR.

Sanscrit Wörterbuch von Otto Bohtlingk und Rudolph Roth. Bogen 41—72.—BY THE EDITORS.

The Athenæum for September, 1858.—BY THE EDITOR.

The London, Edinburgh and Dublin Philosophical Magazine and Journal of Science. Nos. 107-108 for October and November, 1858.

Journal Asiatique No. 45 for July, and No. 46 for August, September, 1858.

Zeitschrift der Deutschen Morgenlandischen Gesselschaft. Zwölfter Band IV. Heft Leipzig, 1858.

Verhandelingen van het Bataviaasch Genootschap van Kunsten en Wetenschappen. Deel 26, Batavia 1854-57.

Tijdschrift voor Indische Taal, Land-en Volkenkunde. New series, Deel 3, parts 1 to 6. Batavia.

Proeve van Soendasche Poczij (sindirís) Door K. F. Holle.

A Lecture on Surveys and Surveying, by Captain Walter S. Sherwill. F. G. S.

Journal of the Agricultural and Horticultural Society, Vol. X. p. II.—  
BY THE SOCIETY.

Bombay Magnetical and Meteorological Observations, 1857.—BY THE  
BOMBAY GOVERNMENT.

Reports of the Juries of the Madras Exhibition of 1857.—BY THE  
BENGAL GOVERNMENT.

Memoirs of the Geological Survey of India, Vol. I. Part 2.—BY THE  
GOVERNMENT OF INDIA.

Notice du Vert de Chine et de la Teinture en Vert chez les Chinois.  
*Paris.*—BY M. NATALIS RONDOT.

*Purchased.*

Revue des Deux Mondes, Tomes 25 to 28, 1858.—Paris.

— et Magazin de Zoologie, Nos. 8 and 9, 1858.

Annals and Magazine of Natural History, Nos. 10 and 11, for October,  
and November, 1858.

Annales des Sciences Naturelles, Tome VIII. and IX. No. 1.

Comptes Rendus, Nos. 10 to 18, 1858.—Tables des do. Tome XLVI.  
for 1858.

The Westminster Review for October, 1858.

Analectes sur l'Histoire et la littérature des Arabes D'Espagne par Al-  
Makarri. Tome 2, p. 1.

Kitabe Seerute Rosoul Allah, by M. Ibn Ishák, translated by Dr. Fer-  
dinand Wüstenfield, Gottinger, Erste and Zweite Abtheilung for 1857-58.

Useful Plants of India. By Major Heber Drury, 1858, Madras.

Journal Des Savants, for September and October, 1858.

Edinburgh Review for October, 1858.

Quarterly Review for October, 1858.

The Literary Gazette, Nos. 16 to 19. New series.

American Journal of Science and Arts, No. 77, September, 1858.

The Natural History Review, No. 4, for October, 1858.

Precis de Jurisprudence Musalmane, Par Sidi Khalil, Deuxieme Tirage.  
Paris, 1858.

**LIBRARY.**

List of Books received in February, 1859.

*Presented.*

Essays on the Religion and Philosophy of the Hindus. By H. T. Cole-  
brooke, Esq.—BY MESSRS. WILLIAMS AND NORGATE.

Calcutta Christian Observer for February, 1859.—BY THE EDITORS.

Oriental Baptist for February, 1859.—BY THE EDITOR.

Selections from the Records of the Madras Government, No. 51, Re-



port on Vaccination. No. 52, Rules respecting applications for Grants-in-aid of Schools unconnected with Government.—BY THE HOME GOVERNMENT.

Ditto No. 53, Papers relating to the General Revenue Survey of the Madras Presidency.—BY THE MADRAS GOVERNMENT.

A Catalogue Raisonnee of Oriental Manuscripts in the Library of the (late) College Fort Saint George now in charge of the Board of Examiners, 1857. By the Rev. Wm. Taylor, 2 copies.—BY THE SAME.

Selections from the Records of the Bengal Government, No. 29. Report on the Rivers of Bengal, by Capt. W. S. Sherwill. Papers of 1856-57 and 58 on the Damooda Embankments 2 copies.—BY THE BENGAL GOVERNMENT.

Memorandum on the Province of Assam, by G. R. Barry.—BY WM. SMOULT, ESQ.

On the Nature and Use of the Indian *Bael* in Diarrhœa, Consumption, &c.—BY HENRY REMFRY, ESQ.—BY THE AUTHOR.

Journal Asiatique, No. 47, for October, November, 1858.—BY THE ASIATIC SOCIETY, PARIS.

Annalen der Chemie und Pharmacie for October and November, 1858.

The Athenæum for December, 1858.

The London, Edinburgh and Dublin Philosophical Magazine, Nos. 110 and 111, for January, 1859.

*Purchased.*

Revue des Deux Mondes, 15th November, 1st and 15th December, 1858, and 1st January, 1859,

Annuaire des Deux Mondes, 1857-58.

Annales des Sciences Naturelles. Tome 9, Nos. 2, 3, and 4.

Comptes Rendus, Nos. 19, to 26, 1858, and No. 1 for January, 1859.

Literary Gazette, Nos. 20, to 29. New Series, 1858.

Annals and Magazine of Natural History. Third series, Vol. 2, Nos. 12, and 13, for December, 1858, and January, 1859.

Journal of the Statistical Society, London, for December, 1858.

Revue et Magasin De Zoologie, Nos. 10 and 11, 1858.

Proceedings of the Royal Geographical Society of London for October, 1858.

Mutanabbii Carmina Cum Commentario Wádhidii, Fasc. 2. Berliu, 1858.

The Athenæum for November, 1858.

Reis naar het Oostelijk Gedeelte van den Indischen Archipel. in het jaar, 1821; Amsterdam, 1858.

Journal des Savants for November and December, 1858.

Lieder des Hafis, Vol. II. Part 1, by Dr. Hermann Brockhaus, 1858, Leipzig.

## FOR MARCH, 1859.

The Monthly General Meeting of the Asiatic Society of Bengal was held on the 2nd instant.

Lieutenant-Colonel Strachey, Vice-President, in the Chair.

The proceedings of the February meeting were read and confirmed.

Presentations were received.

1. From the Home Government of India, certain copies of Selections from the records of the Madras Government.

2. From the Bengal Government, certain copies of Selections from the records of the Bengal Government.

3. From W. H. Smollett, Esquire, a copy of "Memorandum on the Province of Assam" by G. R. Barry, Esq.

4. From Henry Remfry, Esq., Attorney at Law, a copy of his tract "On the Nature and Use of the Indian *Bael* in Diarrhœa, Consumption, &c."

5. From Captain H. Strachey, five rare MSS.; viz., 3 vols. of the Persian *Tarikhi Hyderi*, by Mirza Hyder, and the *Diwans* of two Turki poets.

6. From D. I. Money, Esq., B. C. S., 4 Sepulchral Alabaster Urns found in Thebes, in 1846.

The following is an extract from the letter accompanying them:—

"MY DEAR ATKINSON,—I brought with me from Thebes in 1846, four Sepulchral Alabaster urns, which were found in a tomb not far from the Tombs of the Kings. They contained some part of the human body mummied, but the contents in moving about have been lost. The top of each is separate, and represents one of the Egyptian deities. You can easily recognize their Jupiter Ammon, Anubis, and the Cynocephalus, and the 4th must be familiar to the Asiatic Society, to whom I wish you to present them. One of the urns has been broken and another repaired. There are therefore only three, with four tops; one has a sancer at the bottom on which the urn rested."

The thanks of the Society were specially voted to Mr. Money for these valuable presents.

The following gentlemen were named for ballot at the next meeting:—

The Bishop of Calcutta, proposed by Mr. W. S. Atkinson, seconded by Dr. T. Thomson.

Sir Mordaunt Wells, proposed by Sir J. Colvile, seconded by Mr. W. S. Atkinson.

Lieutenant-Colonel Baird Smith, proposed for re-election by Mr. W. S. Atkinson, seconded by Dr. T. Thomson.

Baboo Nundolala Bose, proposed by Baboo Rajendralal Mittra, and seconded by Baboo Jadaba Krishna Singha.

A letter was read from Rev. W. O'Brien Smith announcing his withdrawal from the Society.

The Hon'ble Sir James Colvile was balloted for and elected an Honorary Member.

The following gentlemen duly proposed at the last meeting were ballotted for and elected ordinary members.

Major A. H. P. Stuart Wortley, M. P.

H. Stainforth, Esq., B. C. S.

Baboo Kassynauth Roy Chowdry.

H. Scott Smith, Esq., Civil Engineering College.

W. Theobald, Esq., junior.

Lieutenant W. G. Alexander of the 93rd Highlanders.

Captain F. W. Stubbs, Bengal Artillery (re-elected).

Mr. E. B. Cowell read a paper on the traces of the *Swayamvara*, an Indian form of Royal marriage, as found in different parts of the ancient world.

The thanks of the meeting were voted to Mr. Cowell for his interesting communication.

The Officiating Librarian and the Zoological Curator submitted their usual reports.

## FOR APRIL, 1859.

The Monthly General Meeting of the Asiatic Society of Bengal was held on the 6th instant.

Fitz Edward Hall, Esq., senior member present, in the chair.

The proceedings of the last meeting were read and confirmed.

*Presentations were received:*

1. From George Loch, Esq., B. C. S., ten Jeypore marble Figures of Hindu Divinities, some of them partially mutilated.

2. From the Royal Institution of Great Britain, the Proceedings of the Institute.

3. From the Madras Government, No. LIV. of the Selections from the records of that Government.

4. From the Home Government, No. XVIII. of the Selections from the records of the Bombay Government.

The following gentlemen duly proposed at the last meeting were ballotted for, and elected ordinary members:

The Bishop of Calcutta.

Sir Mordaunt Wells.

Lient.-Col. Baird Smith (re-elected).

Baboo Nundolal Bose.

The following gentlemen were named for ballot as ordinary members, at the next meeting.

The Hon'ble G. F. Edmonstone, B. C. S., proposed (for re-election) by A. Grote, Esq., seconded by W. S. Atkinson, Esq.

E. C. Bayley, Esq., B. C. S., proposed by A. Grote, Esq., seconded by W. S. Atkinson, Esq.

The Council also proposed Dr. P. Bleeker, of Batavia, as a corresponding member of the Society.

*Letters were read:*

1. From the Hon'ble Sir James Colville, Kt., tendering his thanks for the honor conferred on him by the Society, in electing him an honorary member.

The letter is as follows:

"MY DEAR SIR,—I have to acknowledge the receipt of your letter of the 9th instant, announcing my election as an honorary member of the Asiatic Society of Bengal.

"I beg you to express to the Society my high sense of the honor it has done me in conferring upon me this far more than adequate reward for my poor services as its President.

"I have, &c.,

(Signed) "J. W. COLVILLE."

"W. S. ATKINSON, Esq."

*Communications were received :*

1. From Captain H. Strachey, some additional memoranda upon the fate of Herr Adolphe Schlagintweit, with a suggestion that the Society should address the Government to enquire whether any steps have been taken officially to ascertain the fate of the traveller, and to recover his papers and property.

*Note by Capt. H. Strachey.*

The proceedings of the Asiatic Society for November, 1858, contain a memorandum by Capt. H. Strachey, dated 20th August, regarding the fate of Herr Adolphe Schlagintweit, and the recovery of his collections, instruments, and manuscripts. Captain Strachey has subsequently obtained some further information on the same subject, which is given in the accompanying memorandum, No. 2, dated January, 1859. This information is still very meagre, but goes to confirm the other numerous reports of the traveller's death, as given in the annexed extracts from the up-country newspapers.

As it does not appear that Government has yet taken any steps for the recovery of Schlagintweit's effects, or of instituting more particular enquiries regarding his fate, as suggested in the concluding paragraphs of Captain Strachey's first memorandum, or otherwise, it is recommended that the Asiatic Society do address the Government on the subject, and solicit their action.

In the continued absence of instructions from Government Captain H. Strachey has now himself collected and forwarded to Messrs. H. and R. Schlagintweit in Berlin, all manuscripts recovered in Kumaon, and such of the instruments (chiefly German Thermometers) as appeared to be worth transmission. None of the collections have come within his reach.

*Memorandum No. 2.*

Man Singh and Nain Singh Milmal of Jwar in Kumaon, left Adolphe Schlagintweit at Peshawur at the end of December, 1856,

or beginning of January, 1857, and returned to their own country during the next three months, making a few observations by the way. After this they had no further communication with him, excepting by a message sent in March, 1857, through Capt. H. Strachey, 66th Ghorka Regt., which requested Man Singh to join Adolphe Schlagintweit again, either at Kangra in April, or later in Ladak, which, however, Man Singh did not attempt.

Going as usual to the Gar fair, in the summer of 1857, Man Singh heard only some vague reports about Adolphe Schlagintweit from traders of Ladak, the substance of which is given in the 9th paragraph of memo. No. 1.

In December, 1857, Man Singh received a packet of thermometers, &c., with sundry notes from Hermann Schlagintweit, through Mr. B. Colvin, Assistant Commissioner of Kumaon. These had been sent from Calcutta in April of that year, but owing to the disturbed state of affairs in Upper India soon after, and Man Singh's absence in Bhotan, their delivery was delayed till his return to the lower hills at the end of the year. He made little or no use of these instruments since, and ultimately returned them to Captain Strachey.

In September, 1858, Man Singh, being again at the Gar fair, got some further information about Adolphe Schlagintweit, chiefly from one *Nurpur*, a native of Sunam in Kumaon of Bischir, trading to Ladak and Yarkund. This person was himself at Yarkund in 1857. When Adolphe Schlagintweit arrived in that quarter the Turks of Khokund, were already at or near the city. Adolphe Schlagintweit himself did not enter the town, but his guide, Mahomed Amin, did so, and left it again, either before or during the siege, under what relations with his own master or with the Turks was not known to informant.

As the siege continued, and the Chinese were shut up in their citadel, they obliged sundry of the inhabitants of the place to take part in the fighting; among others, a lot of foreign merchants, including about forty-five (45) of the Bischris, of whom 15 only returned, informant *Nurpur* being one of them; the rest were either killed or made prisoners.

After the siege was raised, informant heard that Adolphe



Schlagintweit had joined the camp of the Turks, and been at first well received by them; and on their retreat towards Khokund, he accompanied them as far as Kashghar. As they were carrying off with them a lot of their prisoners to be kept or sold for slaves (according to the custom of Turkistan), some of the Bischris being among the number, Adolphe Schlagintweit remonstrated that they were British subjects and should be released. On this arose a dispute; the Turks accused Adolphe Schlagintweit of taking part with their enemies, and ended by killing him.

Informant had certificates from the Chinese Authorities of Yarkund, testifying his services in the siege, and promising him some reward at a future opportunity.

The above account of the Bischri *Nurpur* was confirmed by one *Uniar*, an Argon of Ladak, who had received letters from his friends at Yarkund to the same effect.

*Recovered from Man Singh.*

- |      |   |   |
|------|---|---|
| 1 .. | { | 1 Boiling Thermometer (German).   |
|      | { | 2 Ground ditto in cases ditto.  |
| 2 .. | { | 1 Large Newman's Thermometer (broken).  |
|      | { | 1 Boiling Apparatus, in box.  |
|      | { | 1 Old Geneva Watch.   |
|      | { | 1 Small Magnifying Glass.   |
| 3 .. | { | 1 Set of observations on temperatures of rivers and wells in the Punjaub and Rohilkund, &c., from January to March, 1857; and a few other papers. |

Of these, 1 and 3 have been kept by Capt. Strachey to send home, and 2 left with the Assist. Commissioner at Almora, being of no further use.

(Sd.) H. STRACHEY,

*Capt. 66th Goorkha Light Infantry.*

*Almora, January, 1859.*

*Newspaper Extracts referring to the above, furnished by Captain Strachey.*

"A letter written from the borders of Thibet, informs us, we are sorry to say, of there being no doubt of the murder of the enterprising and scientific traveller, Mr. Adolphe Schlagintweit. This, it now appears, took place at the end of the past, or beginning of the present year. It has, however, only become recently known, at



least publicly so, in this country, though it would appear to have been communicated to the friends of the deceased gentleman in Germany so far back as April last ; his death having been sent to Europe from Lahore, where it was known through official letters received from Cashmere. ‘ Why,’ asks our correspondent, ‘ was this not made known to the public generally ?’ Our present information is very scanty, but is to the effect that Mr. Schlagintweit was murdered by a plundering party of Khokund people, who suspected that he was connected with their enemies, the Chinese. None of Mr. Schlagintweit’s instruments or papers have yet been discovered, though people have been sent in search of them, and some have, it is supposed, been taken by servants by the Cashmere route.

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“ Some short time ago, we announced that the enterprising and scientific traveller, Herr Adolphe Schlagintweit, had been murdered, and we now find confirmation of the fact in an extract from the letter of the Simla Correspondent of the *Evening Mail (Times)* of the 17th ultimo, as follows—

“ From the same source, positive, and, I fear, authentic information has been received of the death of the adventurous explorer and naturalist, Adolphe Schlagintweit, one of the three brothers already so well known for their scientific researches, pursued under the auspices of the East India Company in India and among the Himalayas. Although rumours of his death, some accompanied by circumstantial details, have been for some time circulated, they were not known to rest on any good authority. It appears that a party of Khokundhis belonging to a tribe which was in revolt against the Chinese, came into the Yarkund territory early in the spring, and drove the few Chinese troops in the villages into the town of Yarkund. In one of the villages near the town, the Khokundhis found Schlagintweit residing, and in the course of conversation he asked them why they did not attack Yarkund itself, where the Chinese force was so small, and they were so numerous. For some unexplained reason they were offended at this question. They retired and held a consultation, the result of which was that they decided he must be a friend of the Chinese, and wished to ensnare them ; and in the dead of night they surrounded his house and killed him, to the great regret of

their chief, who has saved some of the unfortunate traveller's instruments. The letter contains a few details respecting his collections and the movements of his retainers, which I have forwarded to one of the most eminent of our English *savans*, as perhaps the information is not of sufficient general interest for newspaper readers. Major Lake on one side of the Sutlej, and Lord William Hay at the other, will no doubt exert themselves to get the most complete information respecting the manner of his death, and to secure his valuable collections, instruments, and papers. Some of his followers left for Cashmere, others for the Cis-Sutlege, before the snows set in, for the purpose of making observations."

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From reliable information received from the Commissioner Trans-Sutlege States, we fear but little doubt now remains as to the fate of Mr. Adolphe Schlagintweit. It appears that he was taken prisoner by the Indijans about 12 or 14 months ago, and, if not killed, is still in captivity."

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The Secretary reported that the Council recommended that Capt. H. Strachey's suggestion be adopted, and moved "that the Society do address the Government accordingly."

This resolution having been seconded was put by the chairman and carried unanimously.

2. From Baboo Radha Nauth Sikdar, an Abstract of the Meteorological Observations taken at the Surveyor General's Office, Calcutta, for the month of October, 1858.

#### *Reduction of Subscription.*

The Council submitted the following report :

"The Council have again taken into consideration the rates of subscriptions of members, with a view to their reduction.

They have long felt that such a measure was on every account most desirable, provided only it could be effected without serious danger to the financial credit of the Society.

An apprehension that the immediate loss of income, which any reduction must occasion, would cause serious embarrassment, and the uncertainty how soon, if ever, the influx of new members would be sufficiently large to restore the balance, has hitherto deterred the Council from recommending any reduction.

The great importance, however, of widening the basis of the society, and obtaining for it a more general support, has been so frequently and urgently pressed upon them, that, after much anxious consideration, they have at length agreed to recommend that the experiment should be tried, trusting that a large accession of members may justify the anticipations of its advocates.

The Council have come to the conclusion that, if any reduction is made, it ought to be a considerable one, in order that the measure may obtain any fair chance of success.

The rules which fix the present rates of payment are as follows :

Rule 8.—Ordinary members shall pay an admission fee of Rs. 32 and a quarterly payment of Rs. 16 in advance, commencing from the quarter in which they are elected, so long as they are resident in India. These rates to be continued for 2 years, and to be then subject to revision.

Rule 10.—It shall be optional for any member to compound for the quarterly contributions by the payment of 500 Rs.

Rule 11.—All sums so paid shall be invested in Company's paper, and kept as a reserve fund, the interest of which alone shall be appropriated to the current expenses of the Society.

The Council propose to rescind these rules and substitute for them the following.

“ Ordinary members shall be divided into two classes,—one *Resident*, one *Non-resident*.

“ All members who reside within 30 miles of Calcutta shall be deemed *Resident*.

“ *Residents* shall pay an admission fee of Rupees 32, and a quarterly payment of Rs. 12.

“ *Non-residents* shall pay an admission fee of Rupees 32, and a quarterly payment of Rs. 6.

“ All payments to be made in advance, commencing from the quarter in which members are elected, and continuing so long as they are resident in India.”

At present the number of paying members is 102, of whom about one-half are resident. Supposing this proportion between residents and non-residents to be maintained in future, the Council have calculated that 200 members of both classes will be required in order to provide for the present necessary expenditure of the Society.

## EXPENDITURE.

General charges for Library, Museum and Establishment, .....	6000
Journal,—say.....	1200
	<hr/>
	7200

## INCOME.

100 Residents at Rs. 48,.....	4800
100 Non-Residents at Rs. 24, .....	2400
	<hr/>
	7200

The present number of members must therefore be nearly doubled, if the Society is to be enabled to maintain the position it now occupies.

The Council do not disguise from themselves that the measure they are proposing is one which is not free from risk. They are satisfied that it *ought* to be successful, but they are no less impressed with a conviction that to ensure success a resolute effort is necessary.

They therefore make an earnest appeal to all the members of the Society, and more especially to such as have been the active promoters of a reduction, that in the event of the measure being carried, they will use all their influence to obtain for the Society that enlarged support without which its resources must be seriously crippled, and its usefulness proportionally impaired.

The Council entertain the fullest confidence that this appeal will be responded to by all who have at heart the welfare of the Society and the advancement of science and literature in India; and with this conviction they have no hesitation in recommending the proposed measure to the adoption of the Society."

The Secretary proposed that the ordinary general meeting in July be made special for the consideration and final decision of the question, and that in the interval the votes of non-resident members be taken, in compliance with rule 45.

This resolution was put and carried.

The Curator exhibited the skull of a Tibetan *Kyang* (or so called 'wild Horse'), together with that of a *Ghor-khur* (or so called

‘wild Ass’), from Bikanir, lent to him for that purpose by Major Robert C. Tytler.

#### LIBRARY.

List of books received for the April meeting.

#### *Presentations.*

The Athenæum for January, 1859.

London, Edinburgh and Dublin Philosophical Magazine, No. 112, February, 1859.

Journal Asiatique, No. 48, December, 1858.—BY THE ASIATIC SOCIETY OF PARIS.

Proceedings of the Royal Institution of Great Britain, Part VIII. November, 1857, to July, 1858.—BY THE ROYAL INSTITUTE.

Memorandum of Col. A. Cotton on a Railway from Beikul Harbour to Hydrabad.—BY THE MADRAS GOVERNMENT.

Bibidharta Sangraha for Kartic, No. 55.—BY THE EDITOR.

Oriental Christian Spectator for January and February, 1859.—BY THE EDITORS.

Calcutta Christian Observer for March, 1859.

Oriental Baptist for March, 1859.

Selections from the Records of the Bombay Government, Continuation of No. XVIII. New series, Revenue Settlement in the Province of Sind.—BY THE HOME GOVERNMENT.

Selections from the Records of the Madras Government, No. LIV. Papers relating to the Budget of Public Works for 1857-58.

The Calcutta Review for March, 1859.

#### *Purchased.*

Journal des Savants for January, 1859.

Comptes Rendus, Nos. 2, 3 and 4 for January, 1859.

Literary Gazette, Nos. 30 to 33 for January and February, 1859.

Revue des Deux Mondes for 15th January and 1st February, 1859.

Annales des Sciences Naturelles. Tome IX. No. 5.

Annals and Magazine of Natural History, Vol. III. No. 14.

Westminster Review, No. 29, January, 1859.

The Quarterly Review, No. 209, January, 1859.

The Edinburgh Review, No. 221, January, 1859.

American Journal of Science and Arts, Nos. 78 and 79, November 1858, and January, 1859.

Revue et Magasin de Zoologie, No. 12, 1858, and No. 1, 1859.

Catalogue Annuel de a Librairie Francaise, pour 1858, par Ch. Reinwald.

El-Azraki's Stadt Mecca, by Ferdinand Wüstenfeld, Leipzig. Erster Band, 1858.

Natural History Review and Quarterly Journal of Science, Vol. VI. No. 1, January, 1859.

Memoires sur les Contrees Occidentales par M. Stanislaus Julien. Tome II. Paris, 1858.

Le Boustán de Sâdi, Texte Persan avec un commentaire Persan, par Ch. H. Graf. Vienne, 1858.

Opuscula Arabica by William Wright, 1859.

Avesta die Heiligen Schriften der Parsen Von Dr. Friedrich Spiegel, Zweeter Band, Leipzig, 1859.

Dorin, Bernhard. History of the Afghans, from the Persian of Neamat Ullah, London, 1836.

Weber, Dr., Catrunjaya Mahatmyam, Band I. No. 4, Leipzig, 1858.

#### FOR MAY, 1859.

The Monthly General Meeting of the Asiatic Society of Bengal was held on the 4th instant.

E. A. Samuells, Esq., senior member present, in the chair.

The proceedings of the last meeting were read and confirmed.

Presentations were received:—

1.—From Chaloner Alabaster, Esq., some Chinese curiosities in two boxes.

2.—From Mons. Garcin de Tassy, Paris, copy of a pamphlet on the Bostan of Sâdi.

3.—From Devidyal Singh, of Benares, through Pundit Iswara Chundra Bidya Sagara, a copy of Manava Dhurma Prokash, or Menu Smriti Ka Vasha, being a Hindi translation of the Institutes of Menu.

4.—From the Bombay Government, No. XLIV. of the Selections from the records of that Government.

The following gentlemen duly proposed at the last meeting were balloted for and elected ordinary members:

The Hon'ble G. F. Edmondstone, B. C.S., Lieut.-Governor, North-western provinces (re-elected).



E. C. Bayley, Esq., B. C. S.

Dr. P. Bleeker was elected a corresponding member.

Major R. Tytler, proposed by Mr. Atkinson and seconded by Mr. Samnells, was named for ballot as an ordinary member at the next meeting.

The Council submitted the following report:—

The Council beg to recommend that Rule 49, which directs that “no person shall be proposed or elected a member of the Society on the day of the annual meeting,” be rescinded.

The annual meeting is devoted specially to business matters relating to the general affairs of the Society; but there is no apparent reason why the election of members, which is strictly a matter of business, should be prohibited.

Practically the rule has been found for the last two years extremely inconvenient. In both years several candidates who had been proposed in December stood over for election till February, and in the former of these years, 1857-58, one candidate who was anxious to be elected in order to make use of the Library expressed annoyance at the delay.

The Council therefore propose to rescind the rule; and as an appeal to non-resident members is in this case necessary under Rule 45, they recommend that the votes of such members be at once taken, so that the question may be disposed of at the special meeting which is to be held after the disposal of the ordinary business on the first Wednesday in July.

Communications were received:

1.—From Messrs. Hermanu and Robert Schlagintweit.

A Circular note in reference to the fate of Herr Adolphe Schlagintweit.

The note is as follows:—

SIR,—Lord Stanley, the Secretary of State for India in Council, has been kindly pleased to send us for our information a most carefully compiled collection of official papers and memoranda, which the Government of India as well as several Civil and Military Officers have been good enough to collect in the hope of elucidating the fate of our brother Adolphe Schlagintweit, in charge of the Magnetic Survey of India since 1854.



The papers contain :

1. A large and most elaborate memorandum, which Capt. Henry Strachey, 66th Gorkhas, has given himself the great trouble to compile, partly from evidences of several Natives, partly from notes contained in the Indian newspapers. This memorandum is accompanied by another most valuable communication, the result of Capt. Strachey's indefatigable personal inquiries.

2. Letters from the Dewan of Kashmir to the Chief Commissioner of the Punjaub.

3. Several evidences taken by Major Lake and Messrs. Knox and Taylor, the Civil Officers of the Kangra District.

Besides these official letters, the following gentlemen obliged us by private communications :

a.—Rev. H. Jäschke, Missionary at Kyelong in Lahoul with whom, before starting for Ladak, Adolphe had the pleasure of staying some weeks. The Rev. gentleman also was kind enough to take charge of a part of his luggage, and of such spare instruments which Adolphe did not think advisable to take with him on his journey to the North.

b.—A. C. Gumpert, Esq. Consul of Hamburg and Oldenburg at Bombay who had kindly put himself in communication with several officers of the Panjáb and regularly forwarded us the results of his inquiries.

c.—Lord Elphinstone, Lord Hay, Major Ramsay, Hon'ble W. Elliot, L. Bowring, Esq., W. Russel, Esq., the particularly well informed special correspondent of the *Times* and some other gentlemen, equally obliged us, when occasion presented itself, with their advice and information, in addition to that which we owed to the Indian press. In England especially, Col. Sykes, M. P., and Sir Roderick Murchison communicated us any letters they had received ; in Germany it was chiefly our celebrated and most kind friend, Baron Humboldt, who assisted us in making our inquiries.

From an examination of these papers there is but too much reason to fear that Adolphe Schlagintweit has lost his life in Central Asia, probably in Kashgar after having left Yarkand.

Capt. Strachey's last memoir, Almora, January, 1858, says :

“ After the siege of Yarkand was raised, Adolphe Schlagintweit

had joined the Camp of the Turks and accompanied them as far as Kashgar. As they were carrying off with them a lot of their prisoners to be sold for slaves, some of the Bissahirs being among the number, Adolphe Schlagintweit remonstrated that they were British subjects and should be released. On this arose a dispute. The Turks accused Adolphe Schlagintweit of taking part with their enemies and ended by killing him."

A quite recent letter from December 31st, 1858, to January 11th, 1859, from Mr. Vardouguine, Russian Officiating Consul at Tchougoutchak in the Russian part of Central Asia, seems also to confirm his death. We received this letter through the energetic exertions of Prince Gortschakoff and it was delivered to us by Baron Budberg, the Russian Minister at Berlin. This letter had taken an admirably short time to reach us, being the answer to a request of November 8th, 1858. In this letter he is said to have been killed by order of Bouzrook Khan from Kokand who had besieged Kashgar and invaded Turkistan.

We feel most deeply obliged for all these numerous proofs of general sympathy in Europe and India, and we allow ourselves to draw the attention of our friends in India to the fact, that even now it will not be quite impossible to save at least through their zeal a great part of his journals, observations, instruments and collections, which are the more valuable on account of the countries in which they were made.

Capt. Henry Strachey states, that according to information he received, several boxes with collections, drawings, books and some instruments are in Dehra in the Surveyor General's Office; the Missionaries of Lahoul have informed us that similar objects are still left in their charge; we do not think it improbable that even those, which Adolphe Schlagintweit carried with him, during his travels in Turkistan, might be recovered by a plan we have the honor to propose.

We are perfectly aware, that these objects cannot be got without Government's usual energetic assistance, and without the sanctioning the comparatively small expenses necessary for this purpose. In consequence of the following extract of a letter addressed to us by the India House as early as July, 1858, we consider it our duty again officially to request the kind assistance of Government.

The letter says :

With reference to the letter addressed by General Sabine to the Secretary of the Royal Society, dated 14th May, 1858, in which he states " that the eighty stations visited by the Messrs. Schlagintweit are independent of those visited by Adolphe Schlagintweit in his last and fatal journey of which they have a prospect of receiving a journal and observations," the Court expect that you will use every exertion to recover your late brother's Memoranda of the researches on which the Government of India employed him.

(Signed) J. D. DICKINSON.

We therefore have the honor to propose in reference to his manuscripts and collections :

1. That the objects at Dehra be repacked in accordance with Capt. Strachey's plans.

2. That the Missionaries at Lahoul be requested to send at Government's expense from Lahoul to Kangra the collections, observations and instruments, &c., and to draw up a report, specifying the claims to which Hari Chand, the son of the Negi of Lahoul is entitled, for the journeys he undertook last summer in search of our brother.

3. That a note may be issued to the Lieut.-Governor of the Punjab and to the Commissioners of Kamaon, Simla and Kangra authorizing them to distribute freely circulars in the vernacular languages among the trading people of their districts, promising a reward for any papers, drawings, instruments or other property of Adolphe Schlagintweit delivered to them, the amount of remuneration being dependent on the nature and quantity of the property restored. It is beyond all doubt, that the traders would carry on such circulars to Kashmir, Ladak and the countries of Central Asia which Adolphe Schlagintweit has visited.

4. That all the instruments, collections and observations thus recovered, be forwarded to us, if small parcels, overland to Berlin, if boxes, to London, addressed " Schlagintweit, India House," for being worked out and put up like our other collections.

Finally we have the honor to add that copies of this circular note have been officially dispatched,—

To the India House, London; to the Seats of Government in India; and to the following officers and gentlemen in India.

Col. R. J. H. BIRCH, Calcutta.

L. BOWRING, Esq., Private Secy. to the Governor-General.

The Commissioners of Kamaon, Kangra and Simla.

G. EDMONSTONE, Esq., Calcutta.

Hon'ble WALTER ELLIOTT, Madras.

A. C. GUMPERT, Esq., Bombay.

Rev. JASCHKE, Lahoul.

W. MUIR, Esq., Allahabad.

Col. RAMSAY, Nepal.

W. RUSSEL, Esq., Oude.

The President of the Asiatic Society, Calcutta.

Major RICHARD STRACHEY, Ditto.

Capt. HENRY STRACHEY, Ditto.

Col. WAUGH, Mussoori.

We have the honor to be, Sir,

Your most obedt. Servts.,

(Signed) H. and R. SCHLAGINTWEIT.

The secretary stated that before this circular had reached him he had written a letter to Government on the subject, in accordance with the resolution agreed to by the Society at the last meeting.

He begged to read the letter, which was as follows :

“ FROM THE SECRETARY TO THE ASIATIC SOCIETY OF BENGAL.

“ TO C. BEADON, Esq.

“ *Secy. Govt. of India, Foreign Department.*

“ SIR,—I am directed by the Asiatic Society of Bengal to address you in reference to the fate of the lamented traveller, Herr Adolphe Schlagintweit.

“ From intelligence which has been received, there is unfortunately little room to doubt that this gentleman was murdered by a party of Turkomans near Yarkand, at the end of 1857, or the beginning of 1858.

“ Accounts of his death have been derived from various sources, but it does not appear, from the information which has reached the Society, that any steps have been taken by the Government officially to ascertain the particulars of his fate, or to recover his papers and

collections, which must be of very considerable interest and importance.

“The Society have therefore directed me to inquire whether the Government have at present moved at all in this matter, and if they have not done so, to express a hope that they will at once take such steps as may be desirable to ascertain the circumstances attending his death more accurately, and if possible to recover his papers and property, thus showing that the Government of India does not regard with indifference the fate of a gentleman employed in the public service, who lost his life in the prosecution of scientific discovery and research.

“I have, &c.,

“(Sd.) W. S. ATKINSON,

“*Secy. Asiatic Society.*”

2.—From Professor Mäx. Muller, of Oxford, a paper on the origin of writing in India, and the probable period at which it came into use for literary purposes.

3.—From Baboo Radhanauth Sikdar, Abstract of the results of the hourly meteorological observations taken at the Surveyor General's Office, in the month of November last.

4.—From E. Blyth, Esq., a paper on the cartilaginous fishes of Lower Bengal.

5.—From the same, a paper containing remarks on the different animals known as wild asses.

6.—From the Secy. to Government, Public Works Department, a paper by Capt. Henderson, on the nature and effects of the recent flood of the Indus.

This paper was read by the Secretary, together with a note by Col. R. Strachey, who differed from Capt. Henderson as to the probable origin of the flood. Some discussion ensued, in which Capt. Yule, Col. Baird Smith, Mr. Oldham, and others took part.

The general impression was that the catastrophe which caused the inundation must have occurred in the neighbourhood of Acho, not far from the Gilgit valley, and not towards the head waters of the Nubra or Shiyook, as supposed by Capt. Henderson.

Mr. Samuells read the following note upon the wooden guns taken at the battle of Berhampore by Col. Dunsford in October, 1858, and which he lately presented to the Society :—



“In the proceedings at the February meeting, as published in the newspapers, it is stated that the two wooden guns now before the meeting were presented by me to the Society on behalf of Col. Roweroft. This is a mistake, arising probably from Col. Roweroft having last year made me the medium of presenting a chair of state, and other articles, which he had captured at Suttasee in Goruekpore.

“These wooden guns were taken by the force under Col. Dunsford at Berhampore, a place on the road between Buxar and Arrah, where the rebels were signally defeated towards the end of October last. They had no carriages, and were simply laid on raised beds of earth, and pointed over a low wall so as to command the road up which it was supposed our troops would advance.

“The maker, a Nepalese, it is understood, had guaranteed that they should stand three discharges without bursting; but in fact they both burst at the very first discharge. A large piece was blown out of the side of one, which is said to have killed a sepoy in the firing, and the others fairly broke into two pieces.

“These were the only two wooden guns which the rebels ever finished, but several others were found in course of construction at Jugdispore, when the place was captured. The mode of construction was peculiar. The guns, it will be observed, are fashioned out of solid blocks of saul timber, and in order to facilitate the labour of boring and get rid of the sawdust, the blocks were suspended from one end, and allowed to rest on the point of the augur, which was worked from beneath by means of the common native bow. The guns were about six feet in length, and were bored to about two-thirds of their length. A copper cylinder was then inserted as a lining, but it appears to have had no base, and this was probably the chief cause of the destruction of the gun, as the powder must have got in behind the cylinder, and forced the copper forward in a crumpled state when the gun was fired. The diameter of the bore is  $4\frac{1}{4}$  inches, and of the block from 9 inches at the muzzle to 12 inches at the breech. It was bound with stout hoops of iron at distances of a few inches apart, and with rope between the hoops. The whole was covered with leather, which, however, had disappeared before the guns came into my possession.

“I have only to add that after the battle of Berhampore the guns

were removed to Buxar, by Mr. Garstin, the Deputy Magistrate at that place, and that I obtained them from him. He informed me that there were several balls of hammered iron belonging to them lying at Doomraon, and promised to forward them, but they have not yet reached me.

“ We have notices of several wooden guns having been observed in Burmah and China, but this is, I think, the first instance of guns of this description having been employed in Indian warfare.”

Major Robert C. Tytler exhibited some fine Positive Photographic illustrations of Indian Architecture and scenery, of which the Negatives as well as the Positives were taken by Mrs. Tytler and himself, chiefly in the Upper Provinces. The pictures were of great beauty and of an extraordinarily large size, being the full size of Hollingsworth's largest negative paper 22 inches by 18. They elicited great admiration.

Major Tytler remarked that he had brought them to the notice of the Society, chiefly with the object of encouraging Photography, in a scientific point of view; such illustrations were of great value in elucidating the researches of the Society.

The cordial thanks of the Meeting were voted to Major and Mrs. Tytler for this very interesting exhibition and a hope was expressed that at the next meeting Major Tytler would oblige the Society by shewing a further selection from his Photographs.

The Officiating Librarian submitted the usual monthly report.

#### LIBRARY.

The Library has received the following accessions during the month of April last.

#### *Presented.*

Quarterly Journal of the Geological Society, No. 57, for February, 1859.

Address delivered at the Anniversary Meeting of the Geological Society of London, by the President of the Society.

Journal of the Statistical Society of London, Vol. XXII. Part I., March, 1859, London.

Journal Asiatique, No. 49, January, 1859, Paris.

London, Edinburgh and Dublin Philosophical Magazine and Journal of Science, No. 113, March, 1859.



Annalen der Chemie und Pharmacie, for December, 1858.

Proceedings of the Royal Geographical Society of London, No. I, 1859, London.

The Athenæum for February, 1859.

The Calcutta Christian Spectator for March, 1859.

Bibidhartha Sangraha for Agrahayun Saka, 1780.

Le Bostan de Saadi, par Garcin de Tassy. Paris, 1859.

Annals of the Indian Administration, Part I. Vol. III. March, 1859.—

BY THE HOME DEPARTMENT.

Manuva Dhurma Prokash, or the Institutes of Menu in Hindui.—By DEVIDYALL.

Selections from the Records of the Bombay Government, No. XLIV. Report of the examination of the Mineral Districts of the Nerbudda Valley.—By J. H. BLACKWELL, Esq.

Quaritch's Catalogue of valuable Books. London, 1859. 2 copies.

*Books purchased.*

Garnett, Rev. Richard, Philological Essays. London, 8vo. 1859.

Annals and Magazine of Natural History, &c. No. XV. March, 1859, London.

Journal des Savants, for February, 1859, Paris.

Grimm, Jacob und Wilhelm, Deutsches Wörterbuch—Dritten Bandes erste Lieferung Leipzig, 1859.

Brockhaus, Hermann, Die Lieder des Hafis, Persisch mit dem Commentare des Sudi, Zweiten Bandes Zweites Heft, Leipzig, 1859.

Comptes Rendus, Tome 48, Nos. 6, 7 and 8. Paris, 1859.

Revue des Deux Mondes, for 15th February and 1st March, 1859, Paris.

Literary Gazette, Nos. 34 to 37 for February, 1859.



*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of February, 1859.*

Latitude 22° 33' 1" North. Longitude 88° 20' 34" East.

feet.

Height of the Cistern of the Standard Barometer above the Sea level, 18.11

Daily Means, &c. of the Observations and of the Hygrometrical elements  
dependent thereon.

Date.	Mean Height of the Barometer at 32° Fahr.	Range of the Barometer during the day.			Mean Dry Bulb Thermometer.	Range of the Tempera- ture during the day.		
		Max.	Min.	Diff.		Max.	Min.	Diff.
	Inches.	Inches.	Inches.	Inches.	o	o	o	o
1	29.966	30.056	29.909	0.147	73.9	83.6	65.6	18.0
2	.974	.051	.932	.119	73.8	85.6	63.8	21.8
3	.955	.048	.884	.164	75.1	86.3	67.4	18.9
4	.980	.074	.931	.143	73.1	82.4	65.2	17.2
5	30.013	.106	.959	.147	71.7	82.8	63.0	19.8
6	<i>Sunday.</i>							
7	.054	.134	30.013	.121	73.8	83.2	66.6	16.6
8	.015	.104	29.950	.154	74.4	85.2	68.5	16.7
9	29.989	.074	.923	.151	73.6	84.0	65.5	18.5
10	.978	.066	.910	.156	75.8	84.0	69.0	15.0
11	30.033	.098	.978	.120	75.1	85.6	65.8	19.8
12	.058	.129	.996	.133	76.2	86.8	66.6	20.2
13	<i>Sunday.</i>							
14	.020	.108	.957	.151	73.3	81.8	66.6	15.2
15	.049	.146	.993	.153	70.9	81.0	62.0	19.0
16	.038	.141	.961	.180	70.0	80.6	61.0	19.6
17	29.975	.062	.900	.162	71.1	81.4	61.0	20.4
18	.948	.024	.908	.116	73.1	83.0	64.0	19.0
19	.961	.050	.900	.150	76.1	85.8	68.2	17.6
20	<i>Sunday.</i>							
21	.907	29.990	.838	.152	78.6	89.4	70.2	19.2
22	.895	.963	.839	.124	79.8	89.6	74.0	15.6
23	.960	30.080	.891	.189	78.0	86.8	72.2	14.6
24	.968	.030	.878	.152	77.7	89.2	70.0	19.2
25	.970	.049	.885	.164	73.9	83.0	68.0	15.0
26	.931	.020	.855	.165	73.8	82.4	65.8	16.6
27	<i>Sunday.</i>							
28	.900	29.977	.823	.154	76.6	86.0	68.2	17.8

The Mean height of the Barometer, as likewise the Mean Dry and Wet Bulb Thermometers, are derived from the twenty-four hourly observations made during the day.

# Meteorological Observations.

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of February, 1859.*

Daily Means, &c. of the Observations and of the Hygrometrical elements  
dependent thereon.—(Continued.)

Date.	Mean Wet Bulb Thermometer.	Dry Bulb above Wet.	Computed Dew Point.	Dry Bulb above Dew Point.	Mean Elastic force of Vapour.	Mean Weight of Vapour in a cubic foot of Air.	Additional Weight of Vapour required for complete saturation.	Mean degree of Humidity, complete saturation being unity.
	o	o	o	o	Inches.	T. gr.	T. gr.	
1	66.1	7.8	62.2	11.7	0.563	6.14	2.87	0.68
2	66.8	7.0	63.3	10.5	.584	.37	.61	.71
3	68.4	6.7	65.0	10.1	.617	.73	.61	.72
4	64.9	8.2	60.8	12.3	.537	5.88	.91	.67
5	62.7	9.0	58.2	13.5	.493	.39	3.04	.64
6	<i>Sunday.</i>							
7	69.5	4.3	67.3	6.5	.666	7.27	1.71	.81
8	68.7	5.7	65.8	8.6	.634	6.91	2.24	.76
9	68.5	5.1	65.9	7.7	.636	.95	1.98	.78
10	70.5	5.3	67.8	8.0	.677	7.36	2.18	.77
11	67.4	7.7	63.5	11.6	.588	6.39	.95	.68
12	68.5	7.7	64.6	11.6	.609	.62	3.04	.69
13	<i>Sunday.</i>							
14	66.6	6.7	63.2	10.1	.582	.36	2.48	.72
15	62.5	8.4	58.3	12.6	.494	5.42	.81	.66
16	61.9	8.1	57.8	12.2	.486	.35	.65	.67
17	63.6	7.5	59.8	11.3	.520	.70	.58	.69
18	66.7	6.4	63.5	9.6	.588	6.42	.37	.73
19	70.0	6.1	66.9	9.2	.657	7.15	.48	.74
20	<i>Sunday.</i>							
21	71.7	6.9	68.2	10.4	.686	.43	.95	.72
22	73.6	6.2	70.5	9.3	.739	.98	.77	.74
23	70.3	7.7	66.4	11.4	.646	.00	3.19	.69
24	70.3	7.4	66.6	11.1	.651	.05	.05	.70
25	67.3	6.6	64.0	9.9	.597	6.52	2.49	.72
26	65.5	8.3	61.3	12.5	.546	5.96	3.02	.66
27	<i>Sunday.</i>							
28	70.1	6.5	66.8	9.8	.655	7.11	2.66	.73

All the Hygrometrical elements are computed by the Greenwich constants.

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of February, 1859.*

Hourly Means, &c. of the Observations and of the Hygrometrical elements  
dependent thereon.

Hour.	Mean Height of the Barometer at 32° Fahr.	Range of the Barometer for each hour during the month.			Mean Dry Bulb Thermometer.	Range of the Tempera- ture for each hour during the month.		
		Max.	Min.	Diff.		Max.	Min.	Diff.
	Inches.	Inches.	Inches.	Inches.	o	o	o	o
Mid- night.	29.984	30.050	29.898	0.152	70.2	75.2	64.8	10.4
1	.975	.051	.891	.160	69.6	75.0	64.0	11.0
2	.966	.045	.873	.172	68.9	75.0	63.2	11.8
3	.958	.039	.867	.172	68.8	74.8	63.0	11.8
4	.958	.038	.856	.182	67.8	74.0	62.3	11.7
5	.964	.046	.867	.179	67.5	74.4	62.0	12.4
6	.982	.059	.881	.178	67.0	74.8	61.2	13.6
7	30.006	.089	.902	.187	66.9	74.0	61.0	13.0
8	.037	.123	.942	.181	69.6	76.0	65.5	10.5
9	.057	.138	.958	.180	72.8	78.4	69.0	9.4
10	.065	.146	.963	.183	75.6	81.0	70.6	10.4
11	.051	.126	.954	.172	78.4	82.8	74.0	8.8
Noon.	.024	.114	.911	.203	81.1	85.4	77.0	8.4
1	29.987	.081	.881	.200	83.1	87.9	78.6	9.3
2	.956	.050	.855	.195	84.0	88.9	79.6	9.3
3	.932	.023	.838	.185	84.5	89.6	80.6	9.0
4	.921	.013	.825	.188	83.5	89.3	79.2	10.1
5	.921	.017	.826	.191	82.1	87.2	78.4	8.8
6	.925	.028	.823	.205	79.2	84.5	75.6	8.9
7	.939	.037	.845	.192	76.8	81.9	72.6	9.3
8	.964	.058	.854	.204	74.6	79.2	70.0	9.2
9	.980	.071	.884	.187	73.3	78.0	68.8	9.2
10	.990	.077	.898	.179	71.9	76.6	68.0	8.6
11	.987	.062	.883	.179	71.1	75.9	66.6	9.3

The Mean height of the Barometer, as likewise the Mean Dry and Wet Bulb Thermometers are derived from the observations made at the several hours during the month.

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of February, 1859.*

Hourly Means, &c. of the Observations and of the Hygrometrical elements  
dependent thereon.—(Continued.)

Hour.	Mean Wet Bulb Thermometer.	Dry Bulb above Wet.	Computed Dew Point.	Dry Bulb above Dew Point.	Mean Elastic Force of Vapour.	Mean Weight of Vapour in a cubic foot of Air.	Additional Weight of Vapour required for complete saturation.	Mean degree of Humidity, complete saturation being unity.
	o	o	o	o	Inches.	T. gr.	T. gr.	
Mid-night.	66.5	3.7	64.6	5.6	0.609	6.70	1.35	0.83
1	66.0	3.6	64.2	5.4	.601	.62	.28	.84
2	65.7	3.2	64.1	4.8	.599	.60	.14	.85
3	65.7	3.1	64.1	4.7	.599	.60	.11	.86
4	64.7	3.1	62.8	5.0	.574	.35	.13	.85
5	64.5	3.0	62.7	4.8	.572	.33	.09	.85
6	64.1	2.9	62.4	4.6	.567	.27	.03	.86
7	63.9	3.0	62.1	4.8	.561	.21	.07	.85
8	65.2	4.4	63.0	6.6	.578	.36	.54	.81
9	67.1	5.7	64.2	8.6	.601	.57	2.14	.75
10	68.4	7.2	64.8	10.8	.613	.68	.80	.71
11	69.0	9.4	64.3	14.1	.603	.53	3.78	.63
Noon.	70.0	11.1	64.4	16.7	.605	.51	4.66	.58
1	70.2	12.9	63.7	19.4	.591	.34	5.52	.54
2	70.1	13.9	63.1	20.9	.580	.20	.97	.51
3	70.4	14.1	63.3	21.2	.584	.24	6.11	.51
4	69.9	13.6	63.1	20.4	.580	.21	5.79	.52
5	70.0	12.1	63.9	18.2	.595	.39	.12	.56
6	70.2	9.0	65.7	13.5	.632	.82	3.74	.65
7	69.5	7.3	65.8	11.0	.634	.89	2.94	.70
8	68.5	6.1	65.4	9.2	.626	.82	.38	.74
9	68.0	5.3	65.3	8.0	.623	.82	.02	.77
10	67.4	4.5	65.1	6.8	.619	.79	1.69	.80
11	66.9	4.2	64.8	6.3	.613	.75	.53	.82

All the Hygrometrical elements are computed by the Greenwich constants.

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of February, 1859.*

Solar Radiation, Weather, &c.

Date.	Max. Solar radiation.	Rain Gauge 5 feet above Ground.	Prevailing direction of the Wind.	General Aspect of the Sky.
	o	Inches.		
1	141.0	..	N. & S. W. & S.	Cloudless.
2	141.6	..	S. W. & W.	Cloudless.
3	141.0	..	S. W. & W.	Cloudless.
4	135.0	..	W. & N. W.	Cloudless.
5	140.0	..	W. & N. W. & S. W.	Cloudless.
6	<i>Sunday.</i>			
7	129.0	..	S. E. & N. & S. W.	Cloudless, also foggy between 3 and 10 A. M.
8	142.3	..	S.	Cloudless, also foggy between 2 and 7 A. M.
9	140.0	..	S.	Cloudless.
10	136.4	..	S. & S. E. & E.	Cloudless till 6 A. M. Scatd. \i and \i till 6 P. M. cloudless afterwards.
11	136.5	..	N. E. & N. & S.	Cloudless till 5 A. M. Scatd. \i and \i till 2 P. M. cloudless afterwards.
12	140.0	..	N. E.	Cloudless.
13	<i>Sunday.</i>			
14	135.6	..	N.	Cloudless till 5 A. M. Scatd. \i till 11 A. M. cloudless afterwards.
15	139.0	..	N. & W.	Cloudless.
16	139.0	..	N. & W.	Cloudless.
17	136.0	..	W. & S. & N.	Cloudless.
18	140.0	..	W. & N. W.	Cloudless till 8 A. M. Scatd. \i and \i till 1 P. M. cloudless afterwards.
19	139.0	..	S. W. & S.	Cloudless till 7 A. M. Scatd. \i till 3 P. M. cloudless afterwards; also foggy between 3 and 7 A. M.
20	<i>Sunday.</i>			
21	147.0	..	S. & W.	Cloudy till 7 A. M. cloudless afterwards; also slightly drizzling between midnight and 1 A. M.
22	140.0	..	S. & S. E.	Scatd. clouds till 8 A. M. cloudless afterwards.
23	131.5	..	N. E. & S. & N. W. & N.	Cloudless till 5 A. M. Scatd. \i till 2 P. M. cloudless afterwards.
24	139.4	0.66	S. & S. E.	Cloudless till Noon. Scatd. \i till 9 P. M. cloudless afterwards; also a S. E. gale with thunder, lightning and rain between 7h. 20m. and 7h. 40m. P. M.

\i Cirri, \i Cirro strati, \i Cumuli, \i Cumulo strati, \i Nimbi, —i Strati, \i Cirro cumuli.



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in the Month of February, 1859.*

Solar Radiation, Weather, &c.

Date.	Max. Solar radiation.	Rain Gauge 5 feet above Ground.	Prevailing direction of the Wind.	General Aspect of the Sky.
	o	Inches.		
25	129.0	..	N. W. & other wind.	Cloudy.
26	135.0	..	N. W. & S. E. & W.	Cloudless till 6 A. M. Scatd $\cap$ i and $\cup$ i afterwards.
27	<i>Sunday.</i>			
28	136.0	..	S.	Cloudless till 8 A. M. Scatd. $\cup$ i till 4 P. M. cloudless afterwards.

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in the month of February, 1859.*

MONTHLY RESULTS.

			Inches.
Mean height of the Barometer for the month,	..	..	29.980
Max. height of the Barometer occurred at 10 A. M. on the 15th,	..	..	30.146
Min. height of the Barometer occurred at 6 P. M. on the 28th,	..	..	29.823
Extreme range of the Barometer during the month,	..	..	0.323
Mean of the daily Max. Pressures,	..	..	30.066
Ditto ditto Min. ditto,	..	..	29.917
Mean daily range of the Barometer during the month,	..	..	0.149

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			°
Mean Dry Bulb Thermometer for the month,	..	..	74.6
Max. Temperature occurred at 3 P. M. on the 22nd,	..	..	89.6
Min. Temperature occurred at 7 A. M. on the 16th and 17th,	..	..	61.0
Extreme range of the Temperature during the month,	..	..	28.6
Mean of the daily Max. Temperature,	..	..	84.6
Ditto ditto Min. ditto,	..	..	66.6
Mean daily range of the Temperature during the month,	..	..	18.0

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			°
Mean Wet Bulb Thermometer for the month,	..	..	67.6
Mean Dry Bulb Thermometer above Mean Wet Bulb Thermometer,	..	..	7.0
Computed Mean Dew-point for the month,	..	..	64.1
Mean Dry Bulb Thermometer above computed mean Dew-point,	..	..	10.5

			Inches.
Mean Elastic force of Vapour for the month,	..	..	0.599

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			Troy grains.
Mean Weight of Vapour for the month,	..	..	6.52
Additional Weight of Vapour required for complete saturation,	..	..	2.68
Mean degree of humidity for the month, complete saturation being unity,	..	..	0.71

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			Inches.
Rained 2 days, Max. fall of rain during 24 hours,	..	..	0.66
Total amount of rain during the month,	..	..	0.66
Prevailing direction of the Wind,	..	..	S. & W. & N.

*Abstract of the Results of the Hourly Meteorological Observations  
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in the month of February, 1859.*

MONTHLY RESULTS.

Table showing the number of days on which at a given hour any particular wind blew, together with the number of days on which at the same hour when any particular wind was blowing, it rained.

Hour.	N.	Rain on.	N. E.	Rain on.	E.	Rain on.	S. E.	Rain on.	S.	Rain on.	S. W.	Rain on.	W.	Rain on.	N. W.	Rain on.	Calm.	Rain on.	Missed.
	No. of days.																		
Midnight.	3						2	11			5		2		1				
1	3						2	11	1		5		2		1				
2	3						2	11			5		2		1				
3	3						2	10			4		3						2
4	3						2	9			5		4						1
5	4						2	9			5		2						2
6	5	1					2	8			3		4		1				
7	5	1			1		2	7			3		4		1				
8	6						4	6			3		1		4				
9	6		1		2		3	5			2		2		3				
10	6		2		2		3	4			2		3		2				
11	5		3		2		2	3			4		1		4				
Noon.	7	3			1		2	5			2		2		2				
1	5	2			1		2	5			1		4		4				
2	3	2					3	3			2		6		5				
3	3	2					3	3			1		8		4				
4	4	2					2	4					7		5				
5	2	4			1			3			2		10		2				
6	2	4			1			4			2		10		1				
7	2	3			1			6			3		6		3				
8	2	3					1	5			4	1	6		3				
9	3	3					1	6			4		4		3				
10	3	3						7			3		5		3				
11	3	3						7			3		5		3				



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